

FIG. 1

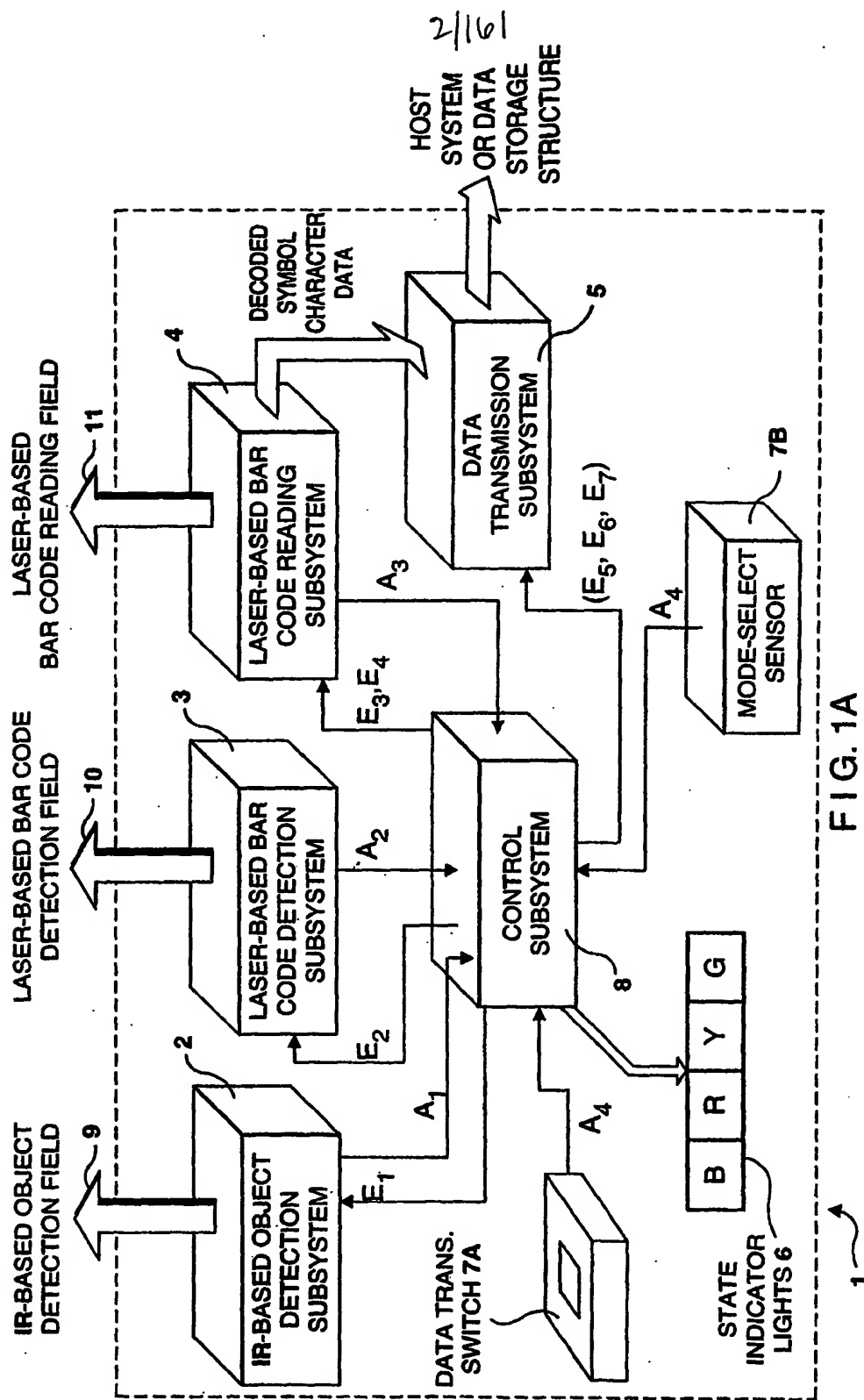


FIG. 1A

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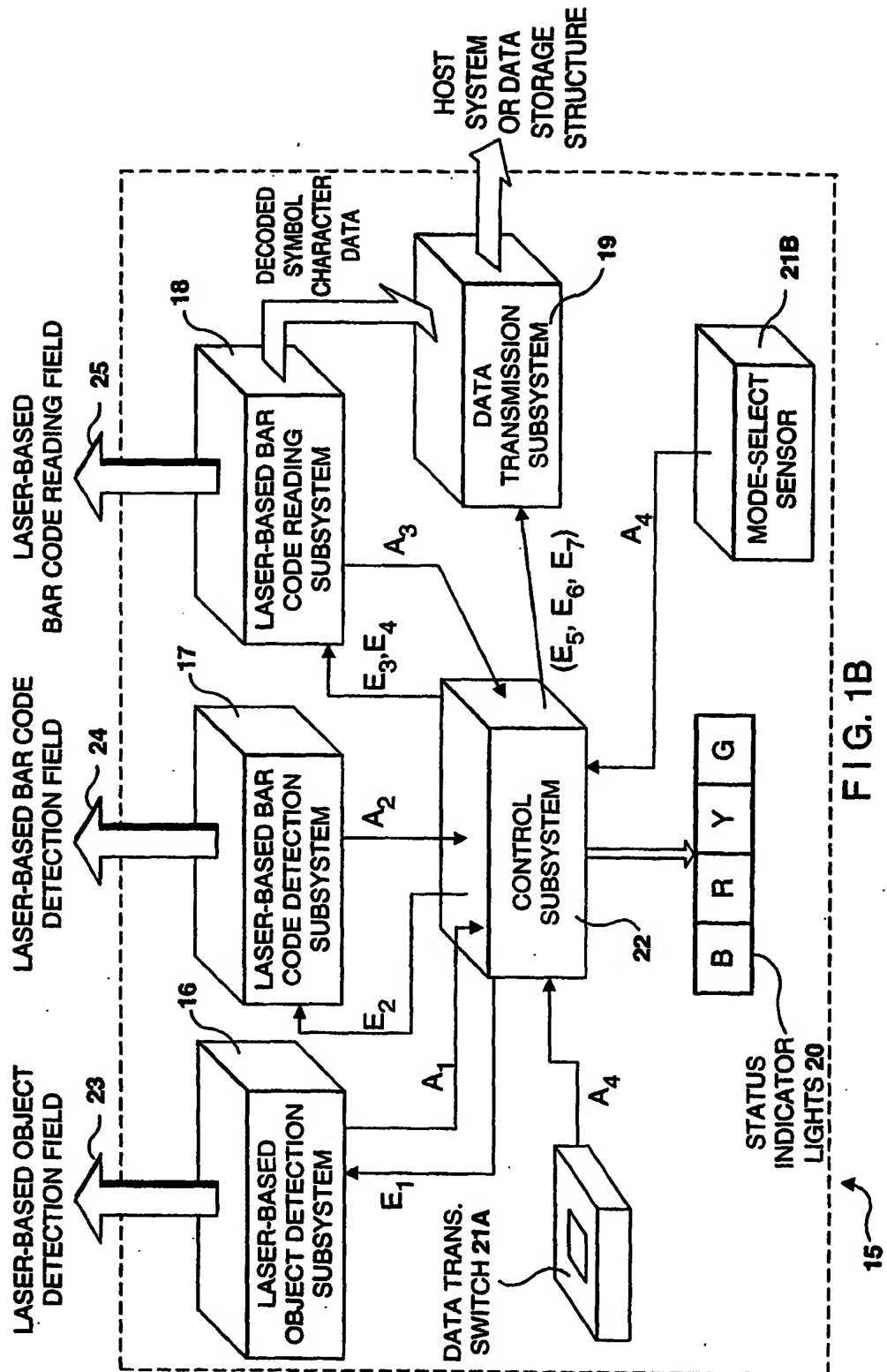


FIG. 1B

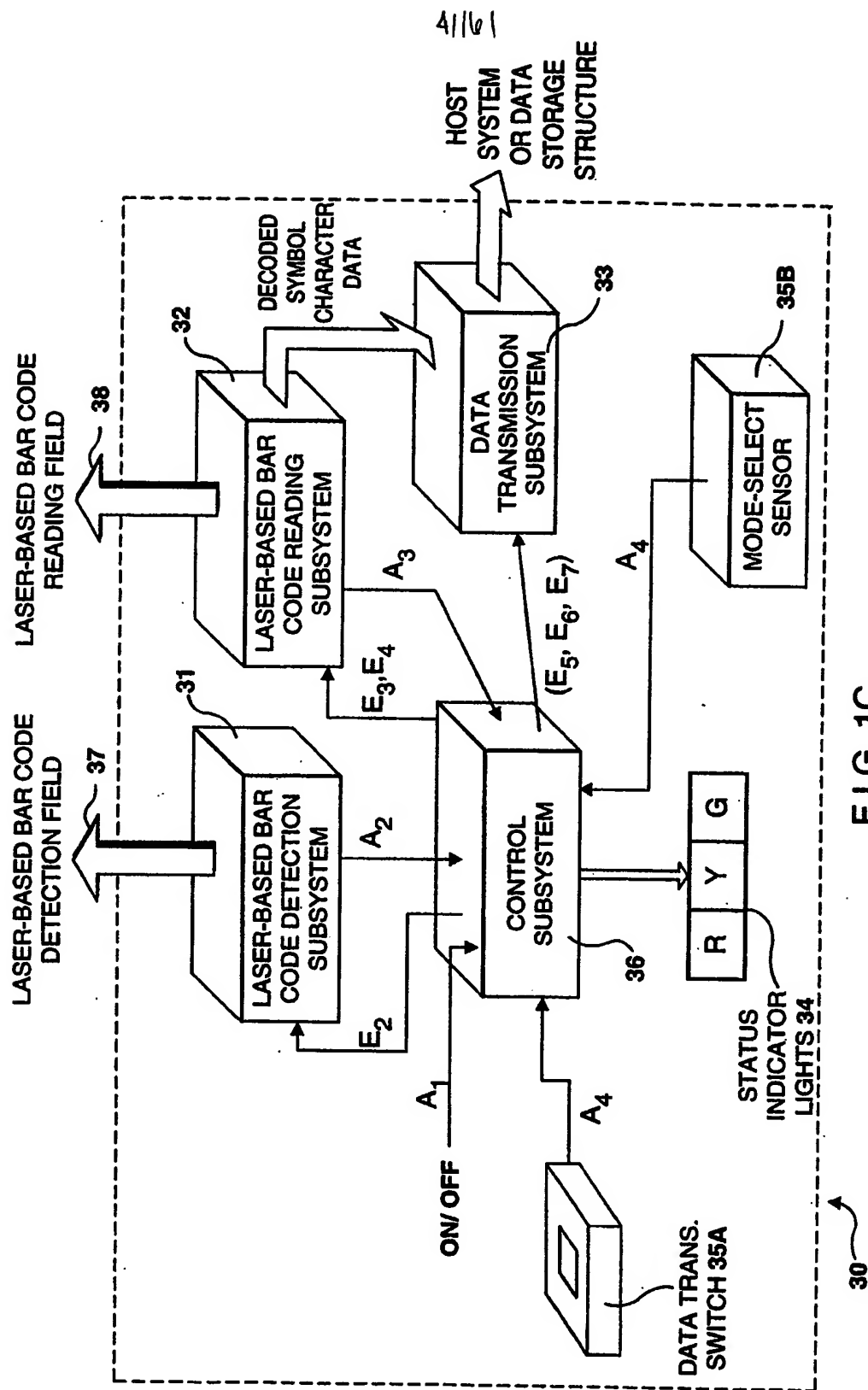


FIG. 1C

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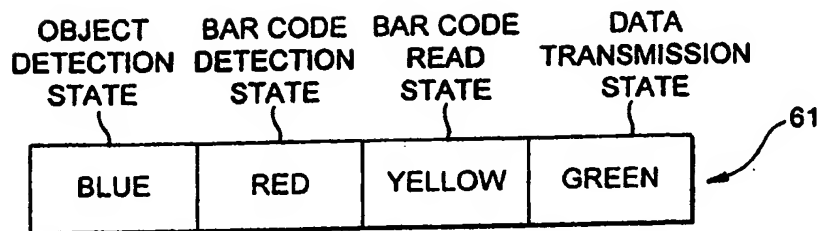
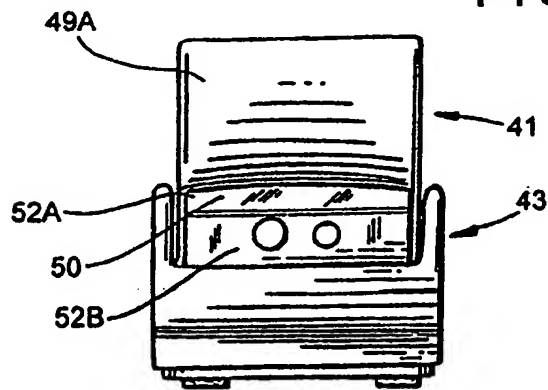
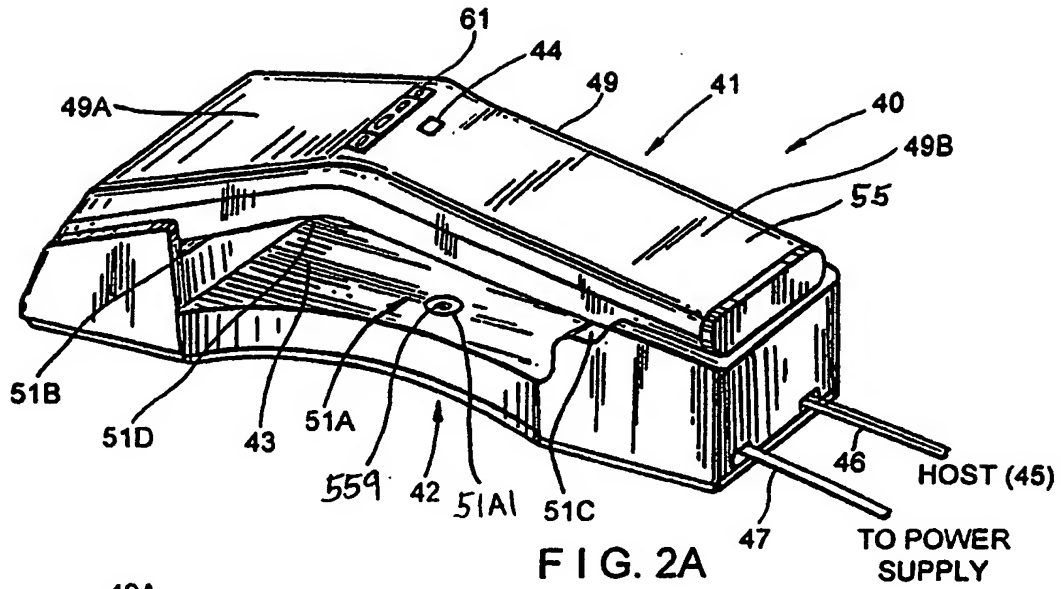


FIG. 2C

6(16)

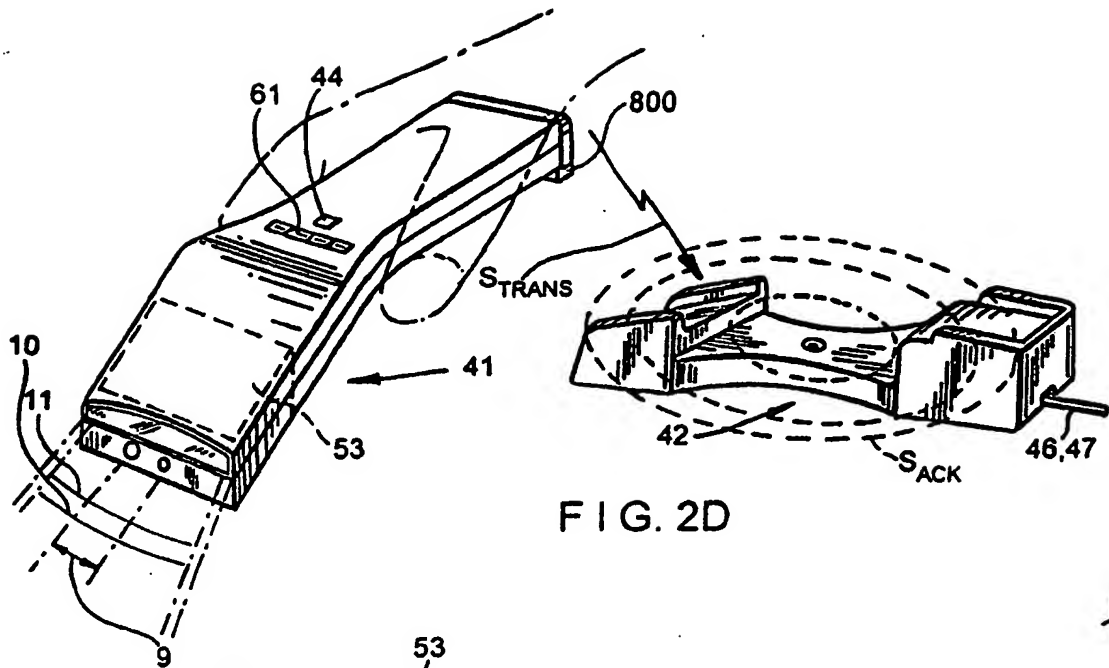


FIG. 2D

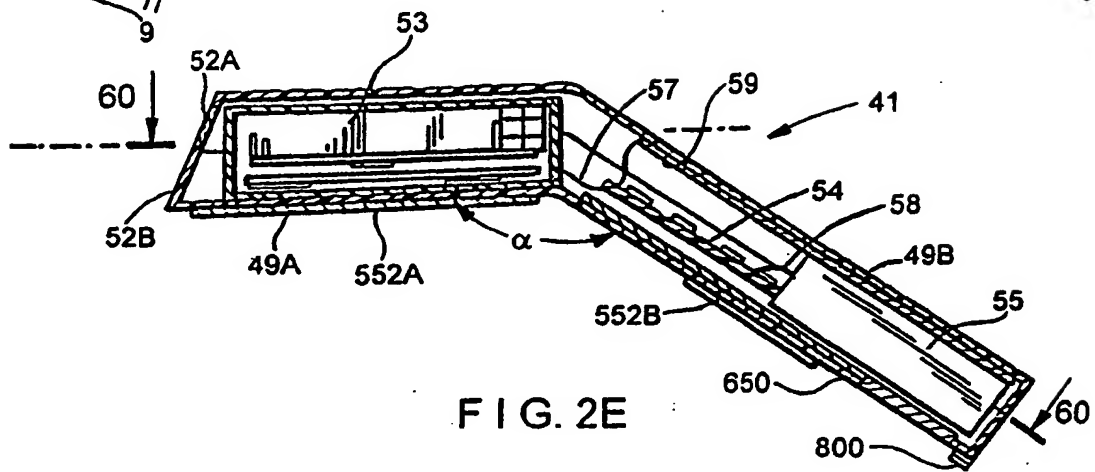


FIG. 2E

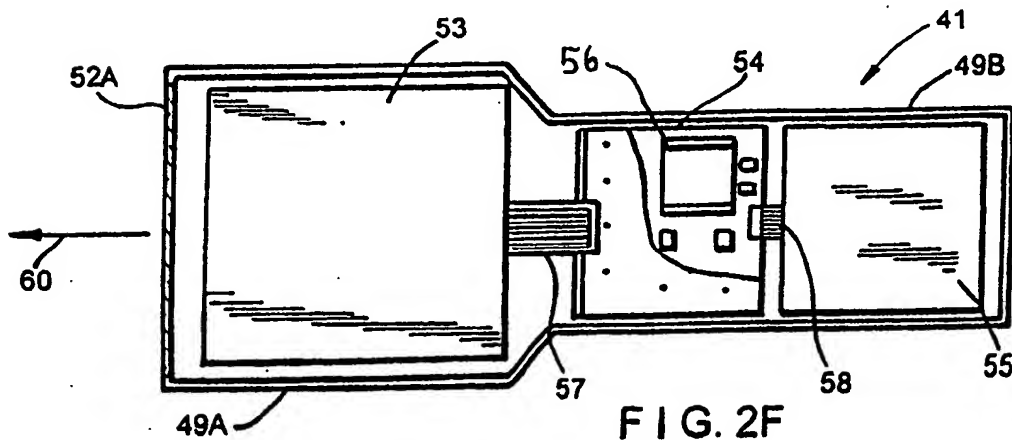


FIG. 2F

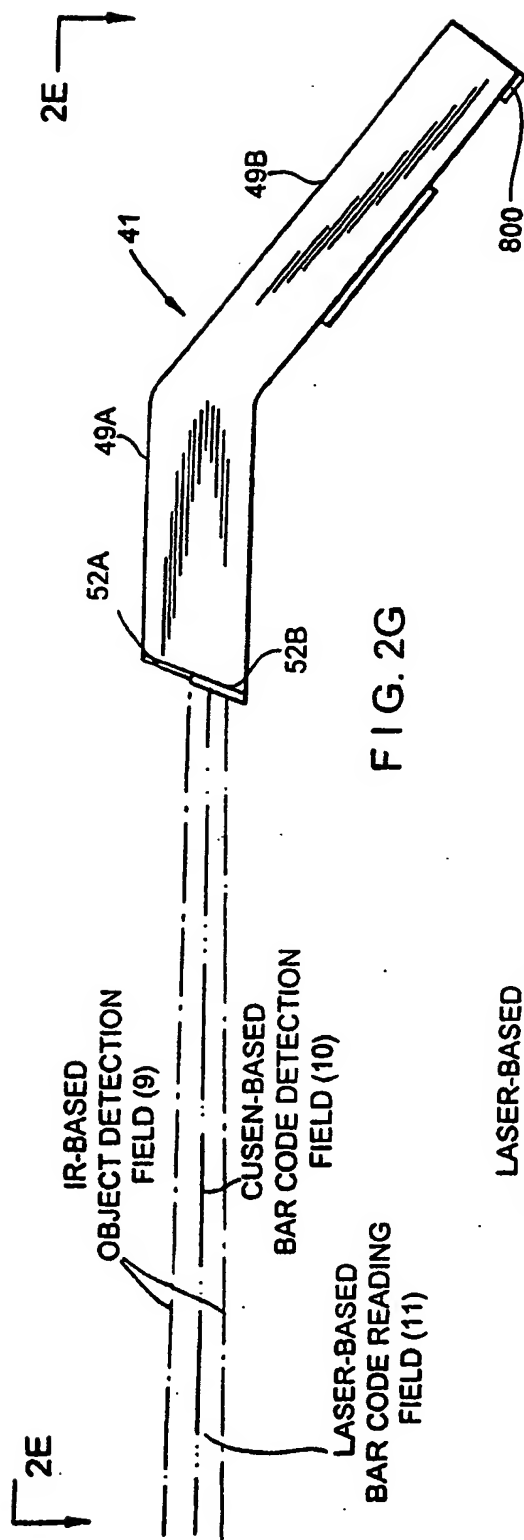


FIG. 2G

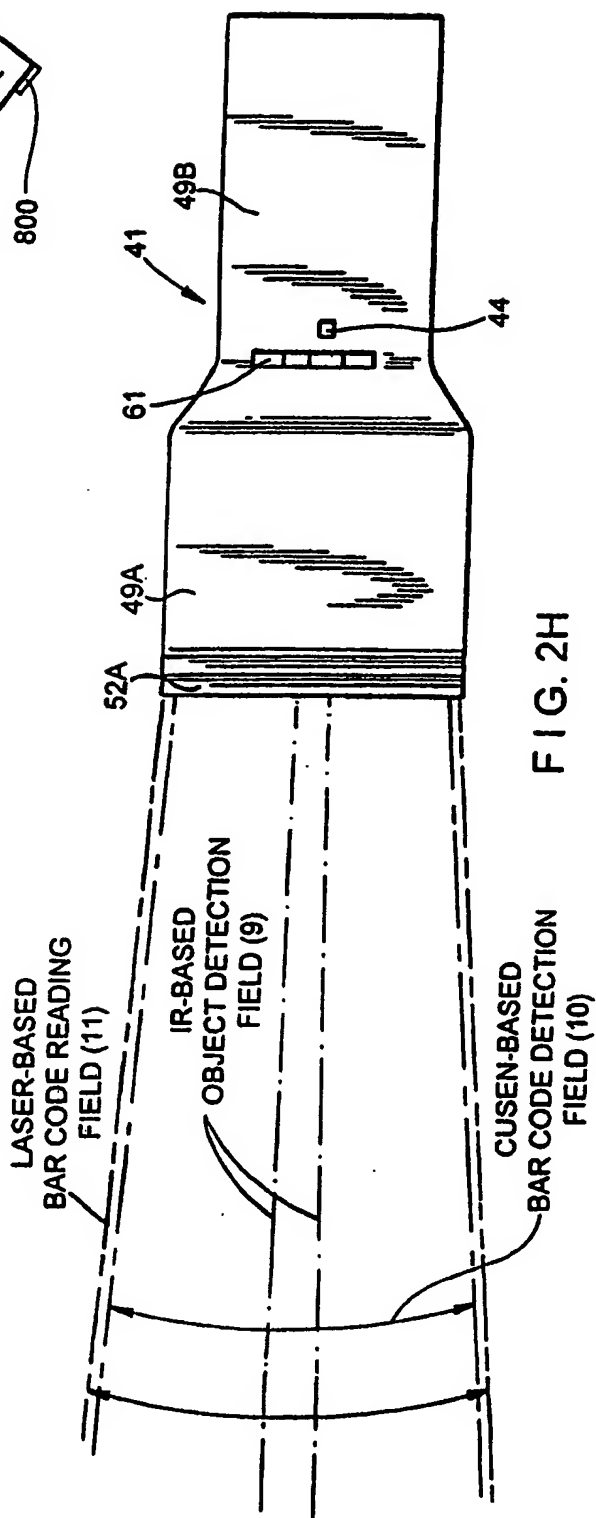


FIG. 2H

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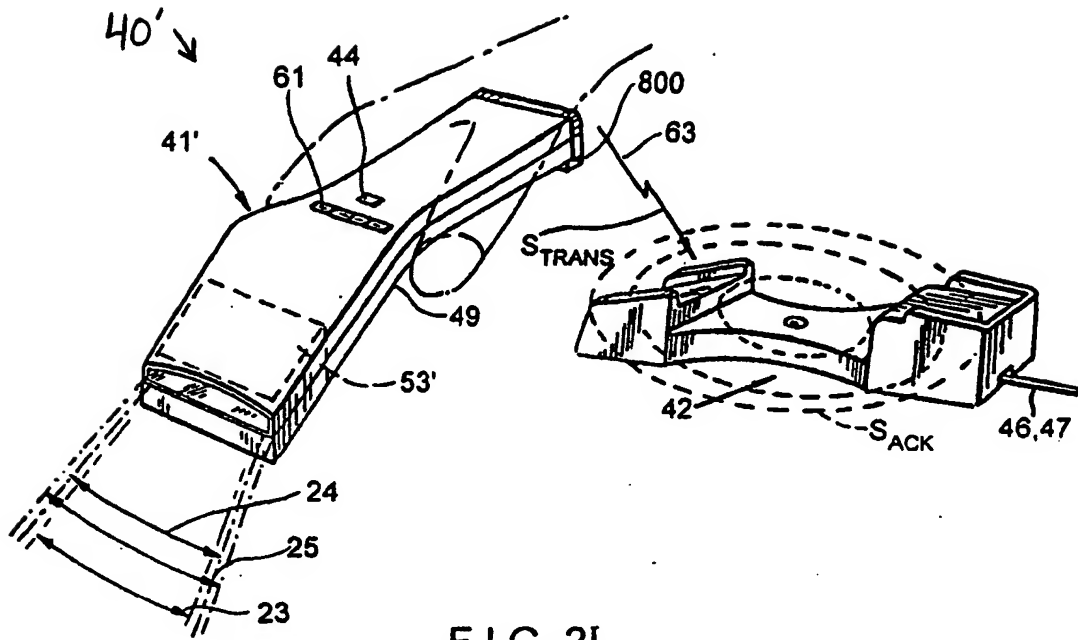


FIG. 2I

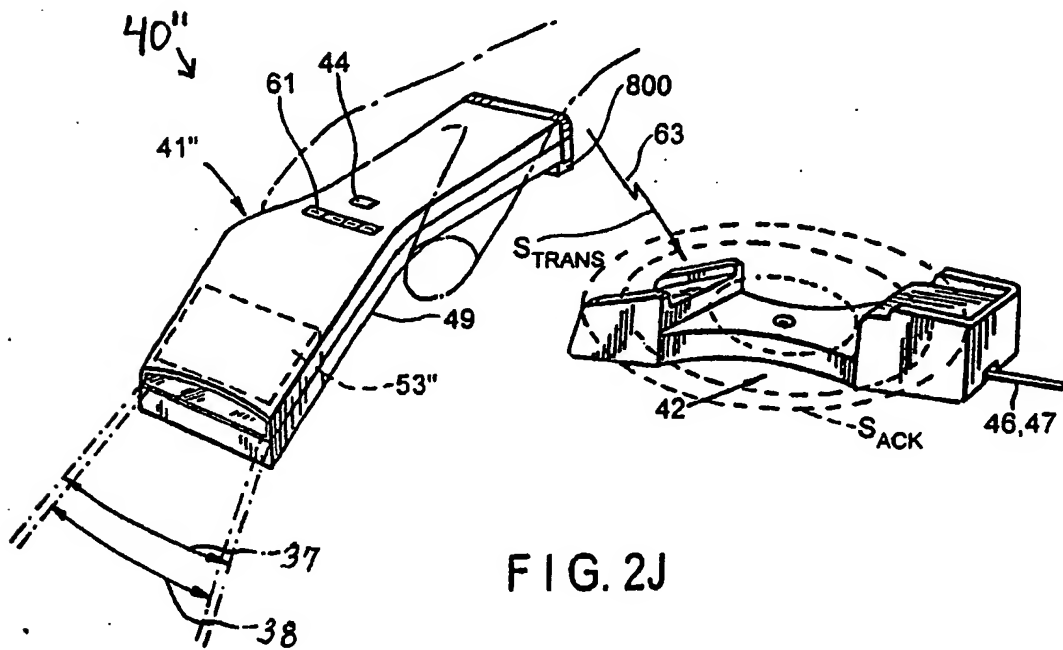
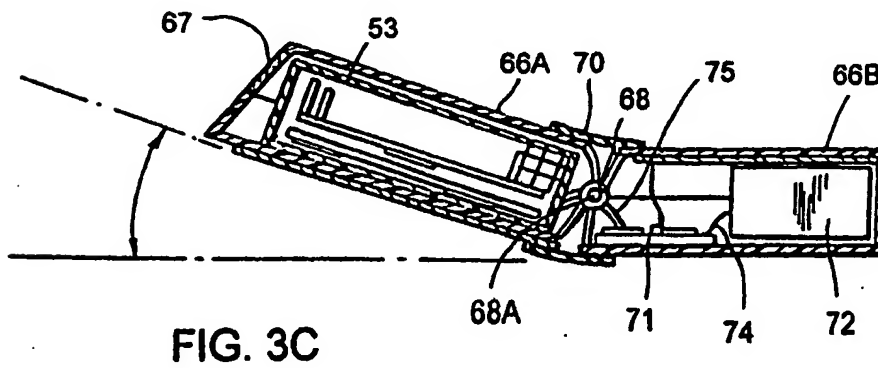
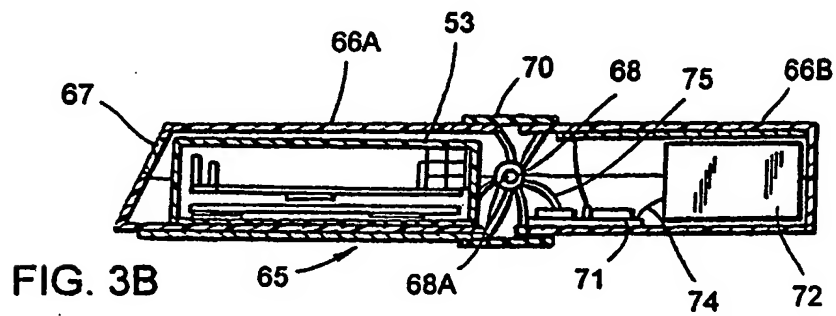
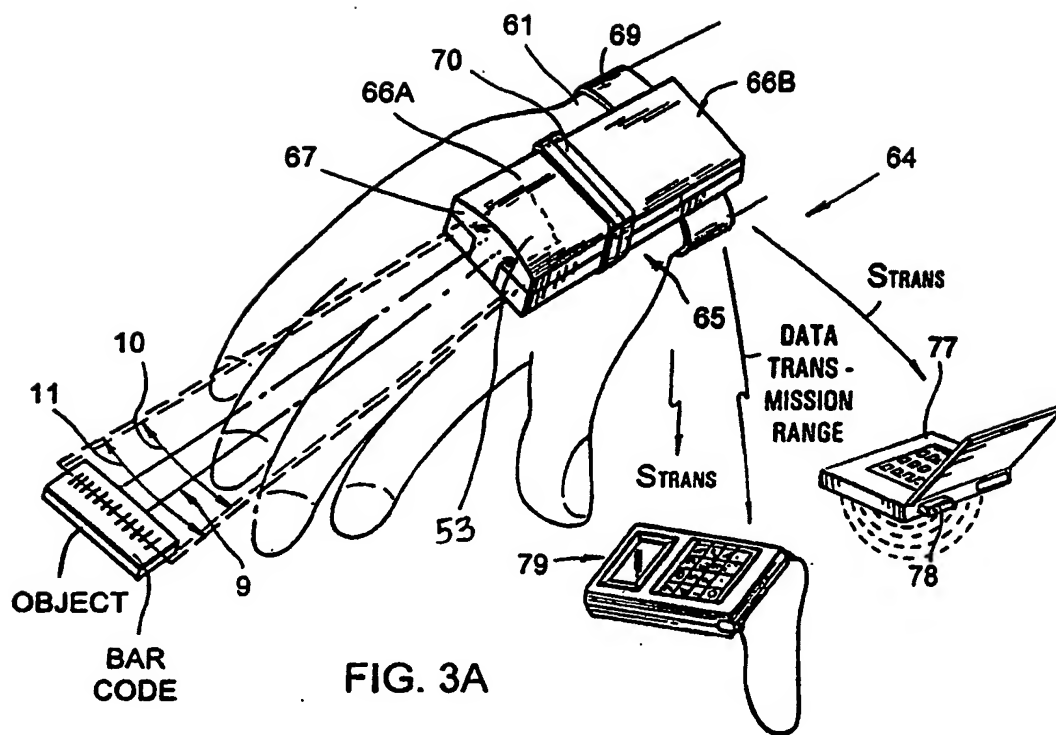


FIG. 2J

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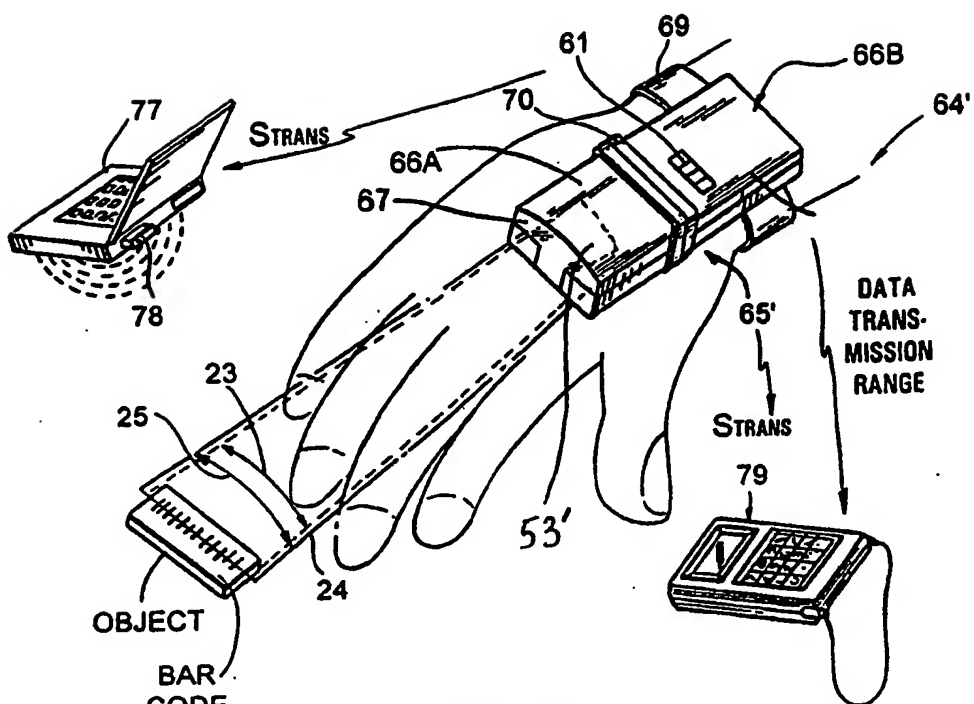


FIG. 3D

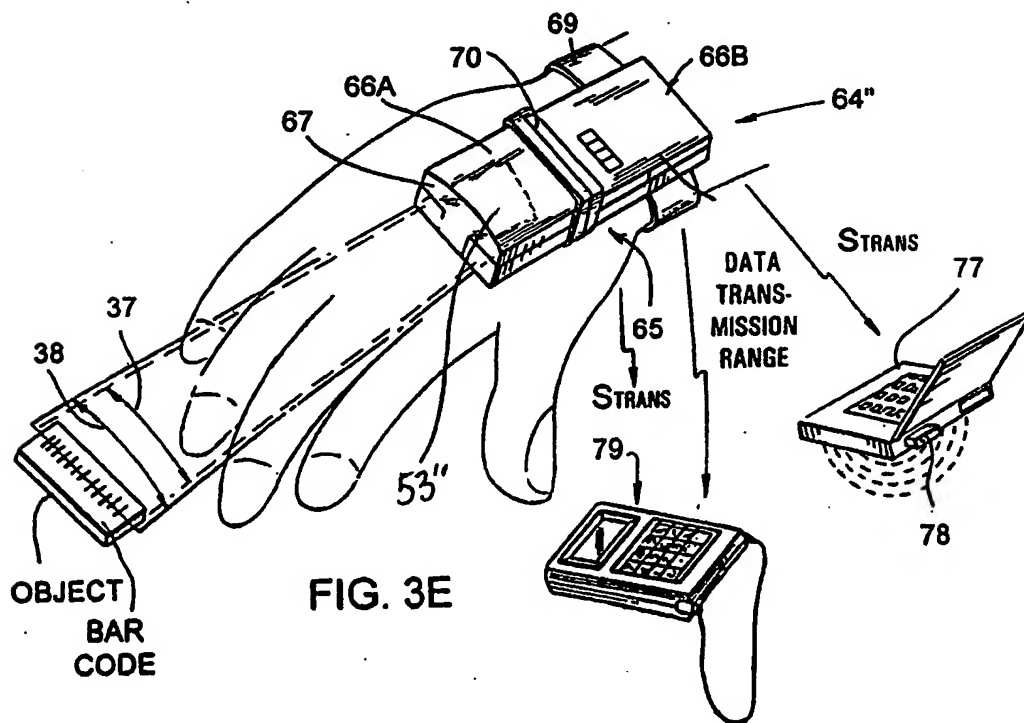
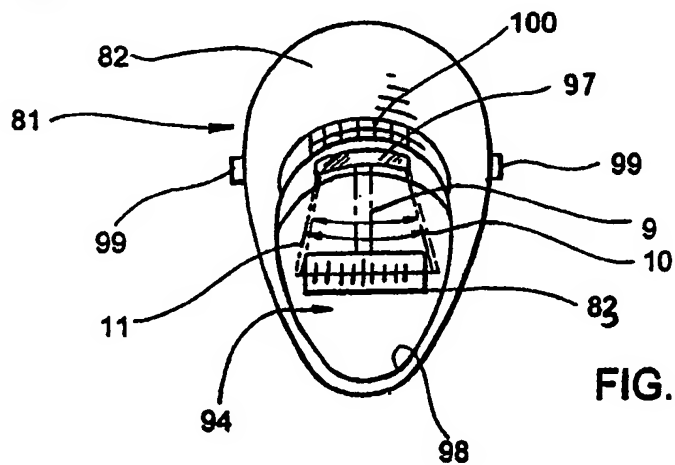
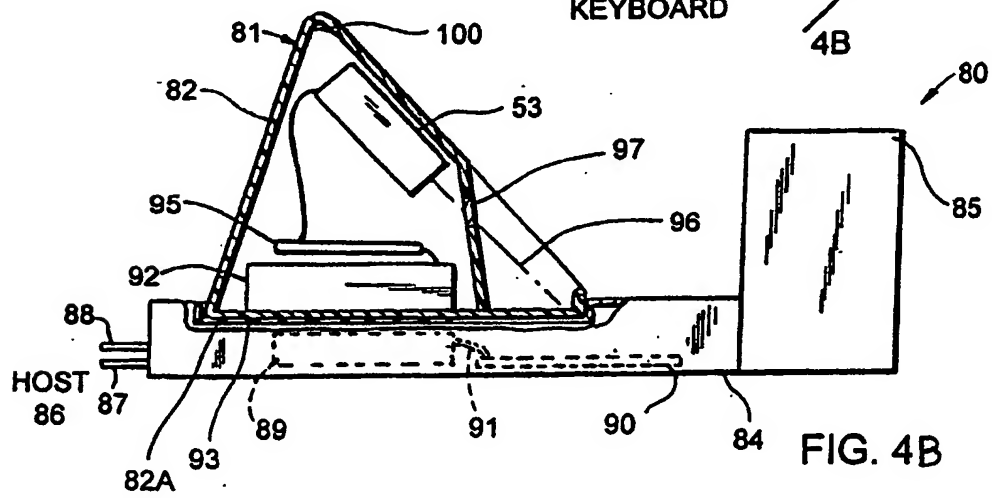
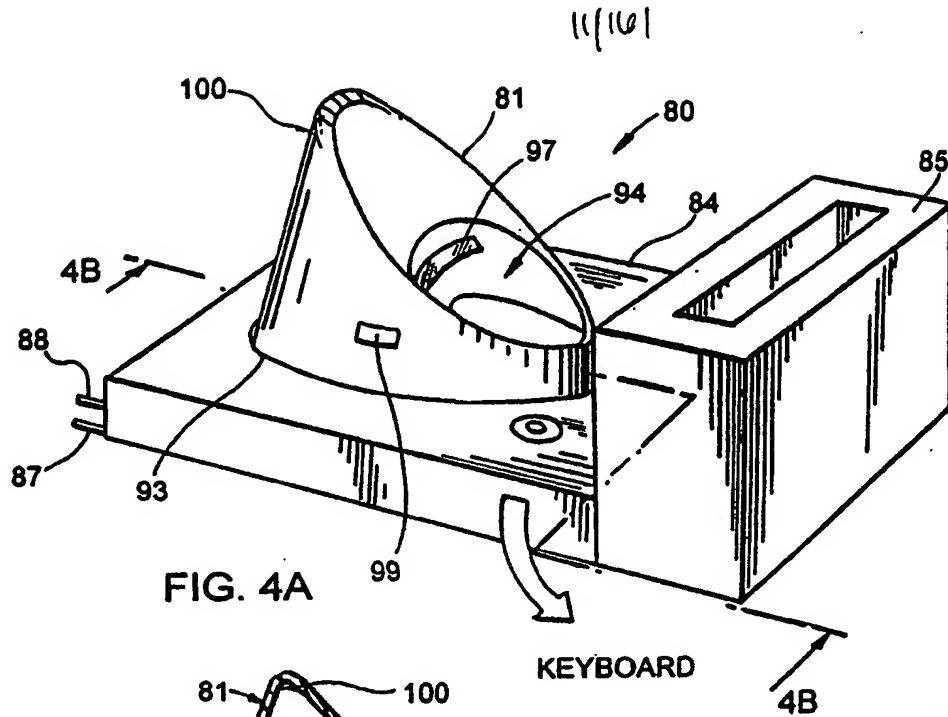
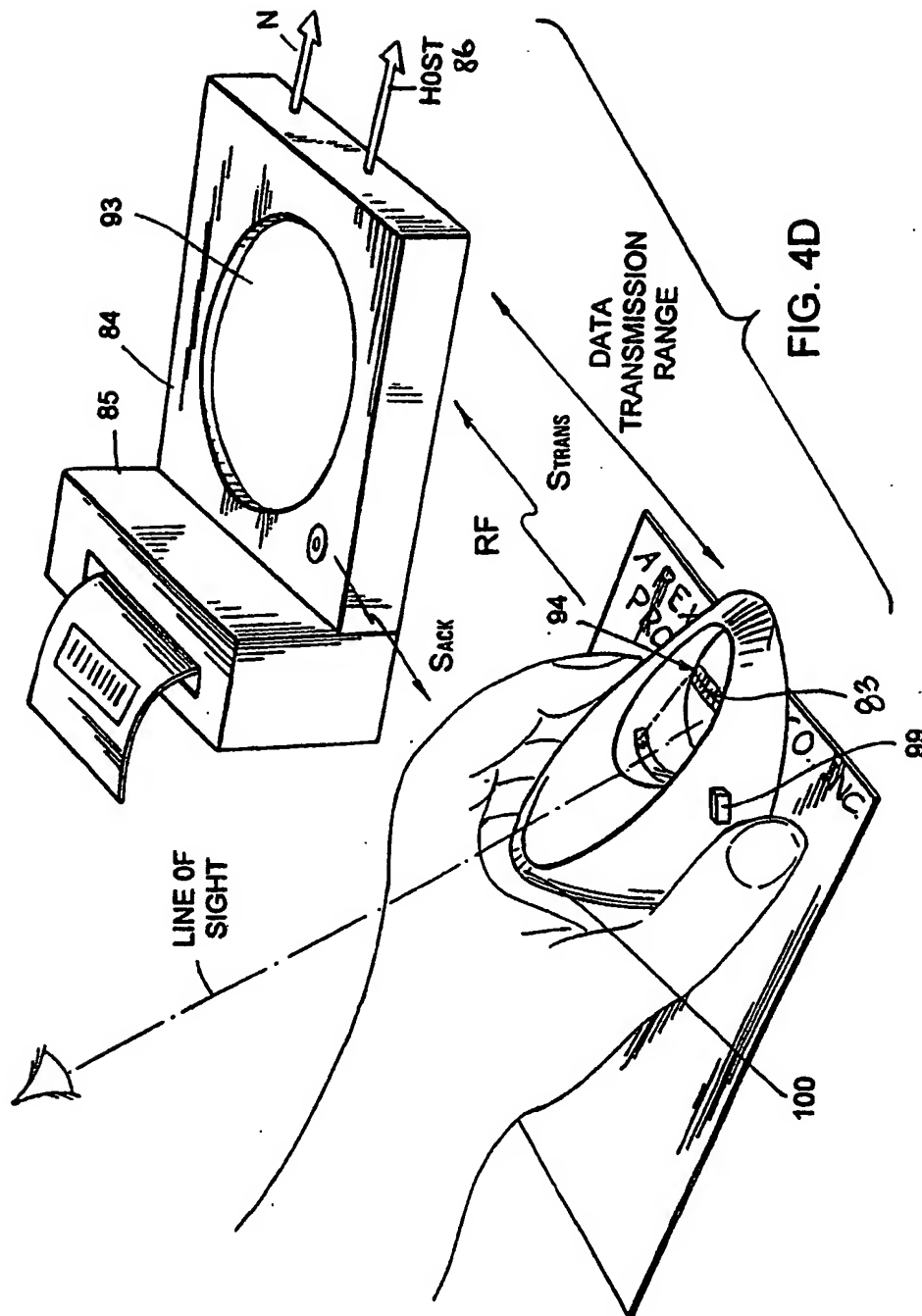


FIG. 3E





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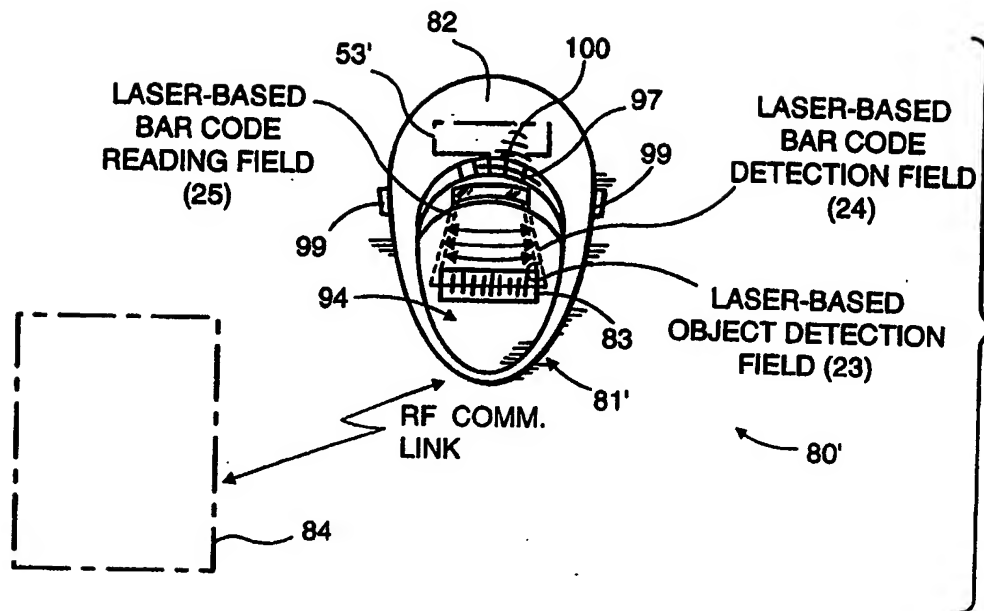


FIG. 4E

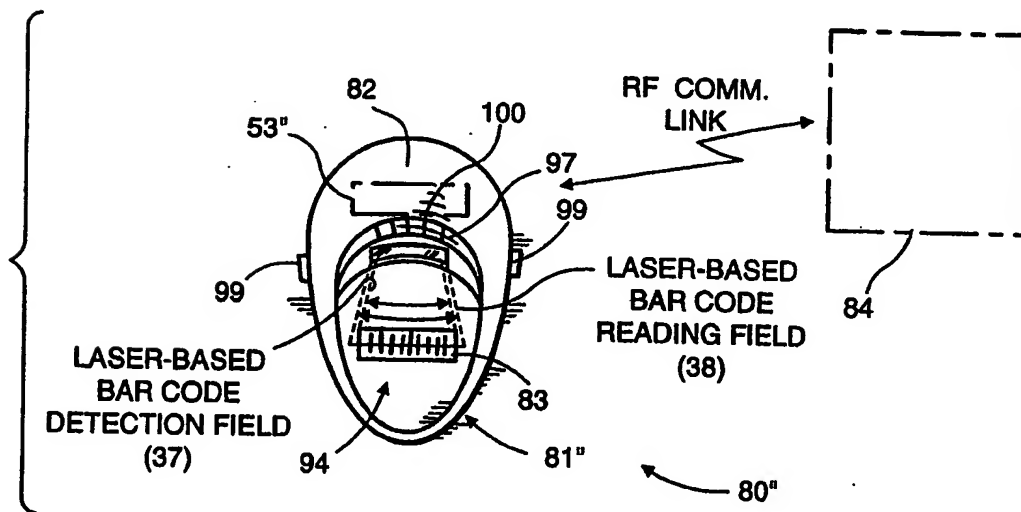


FIG. 4F

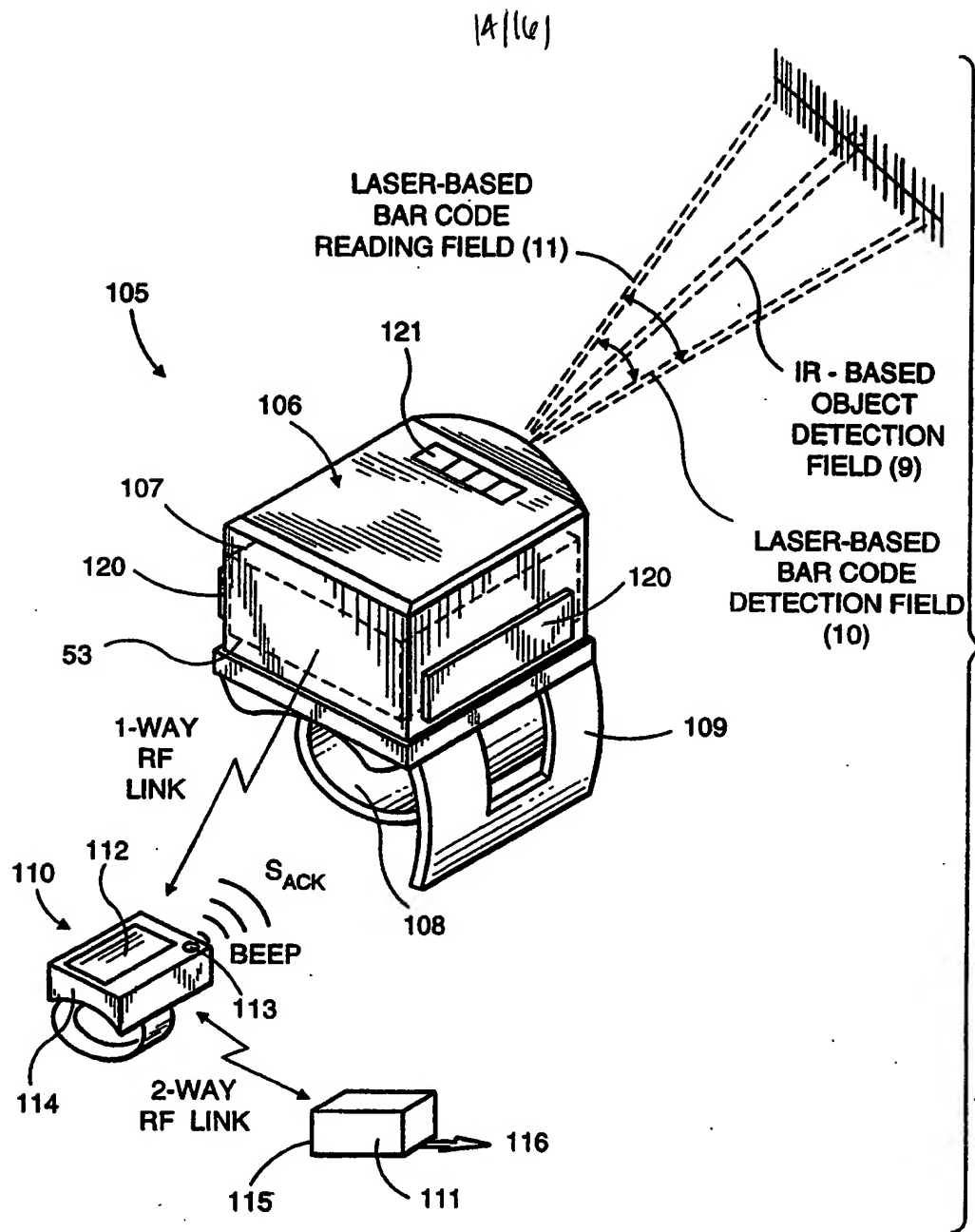


FIG. 5A

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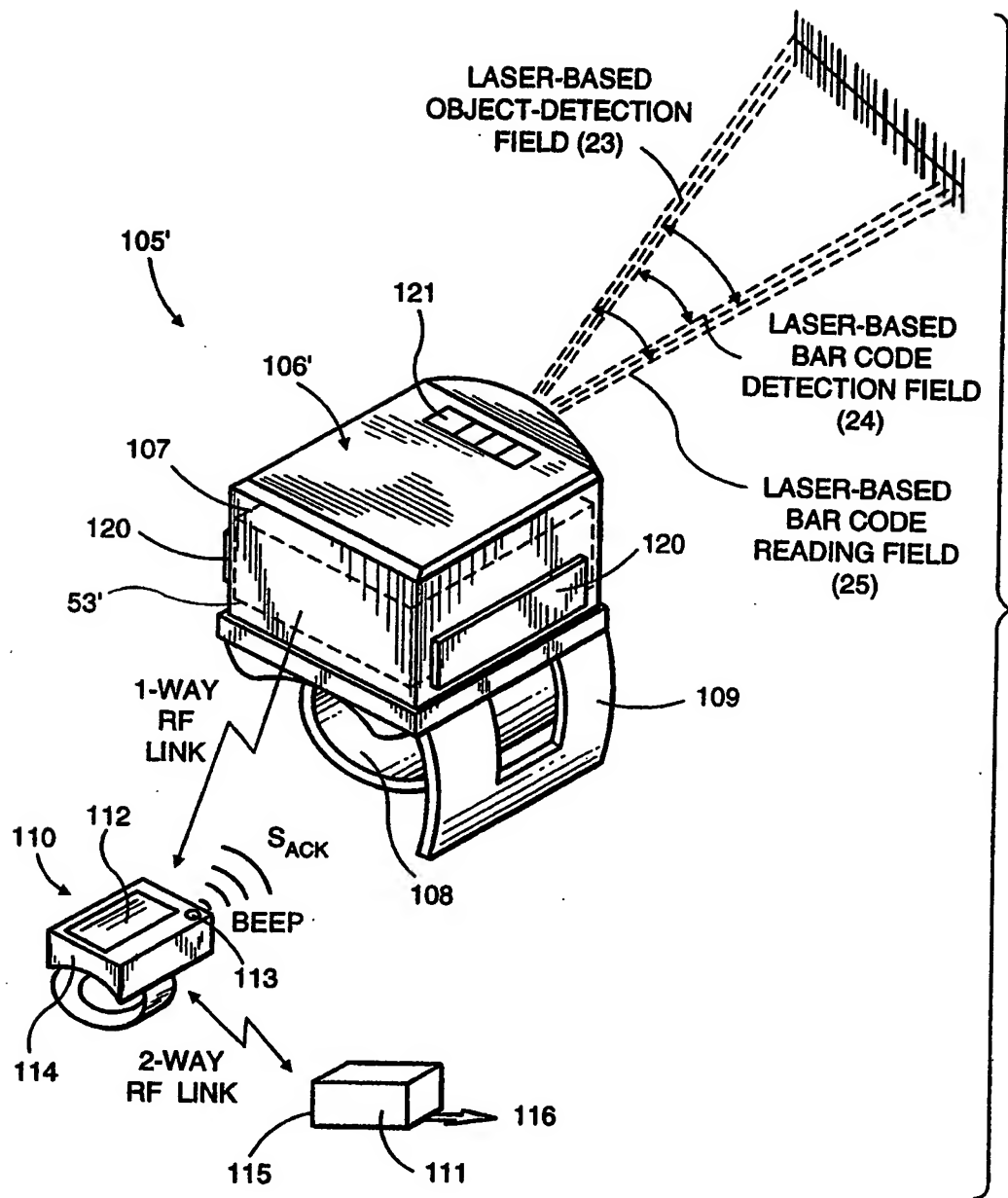


FIG. 5B

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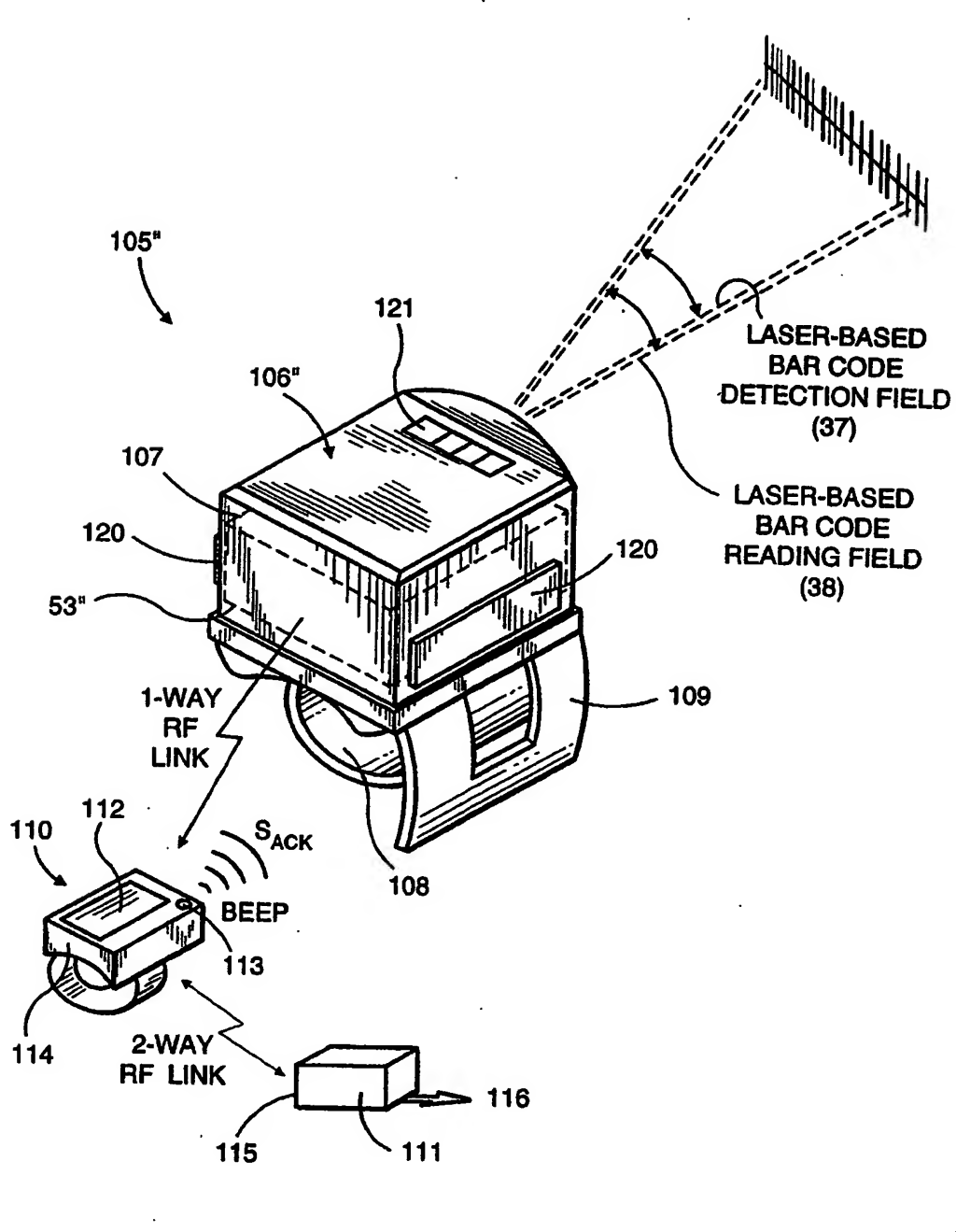


FIG. 5C

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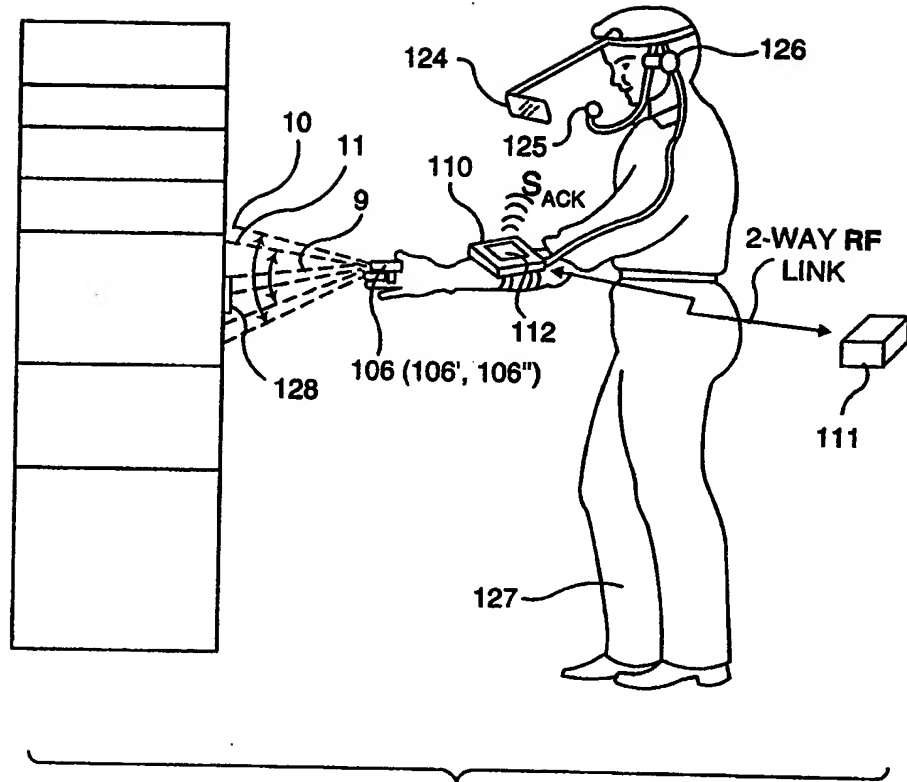
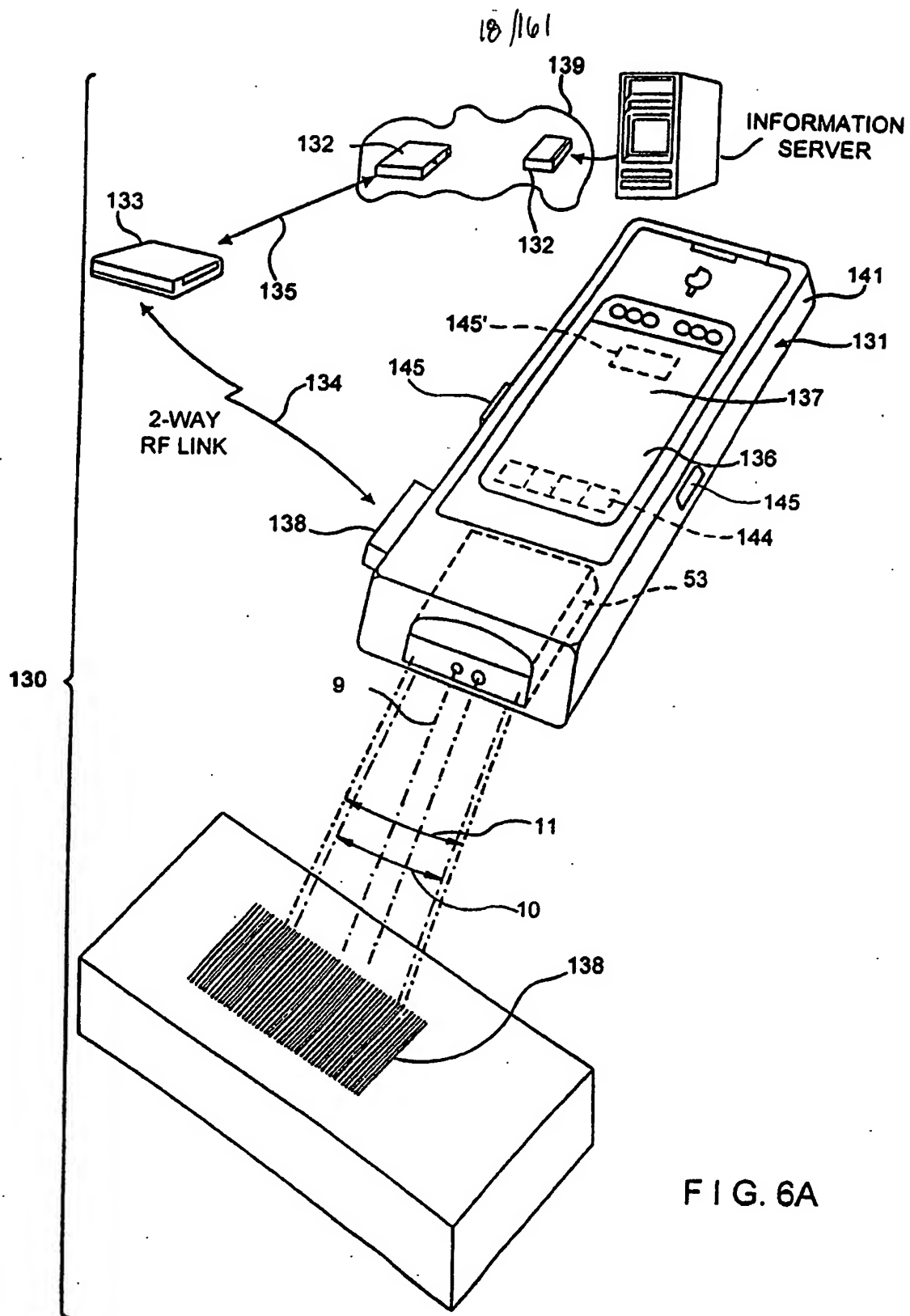
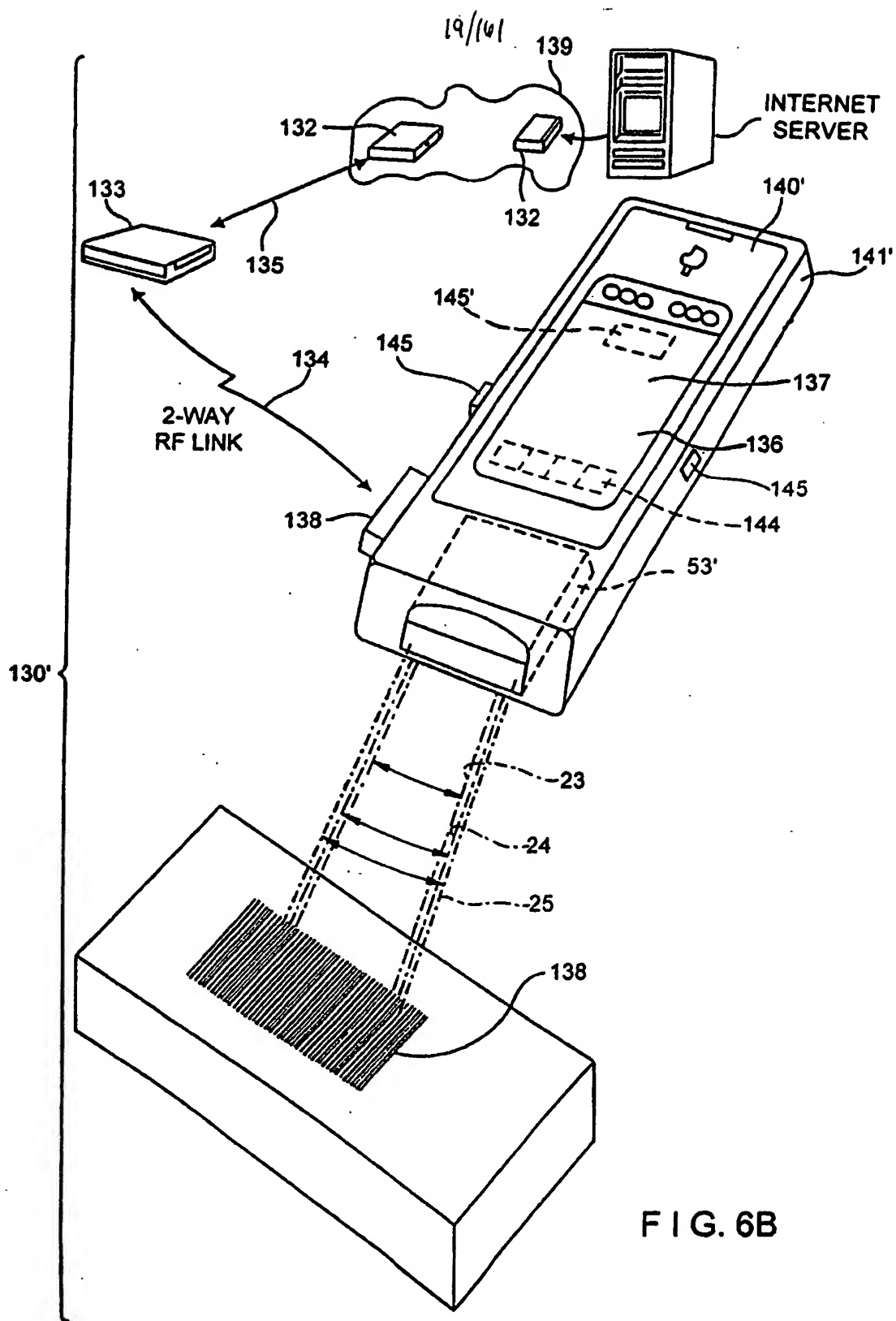


FIG. 5D





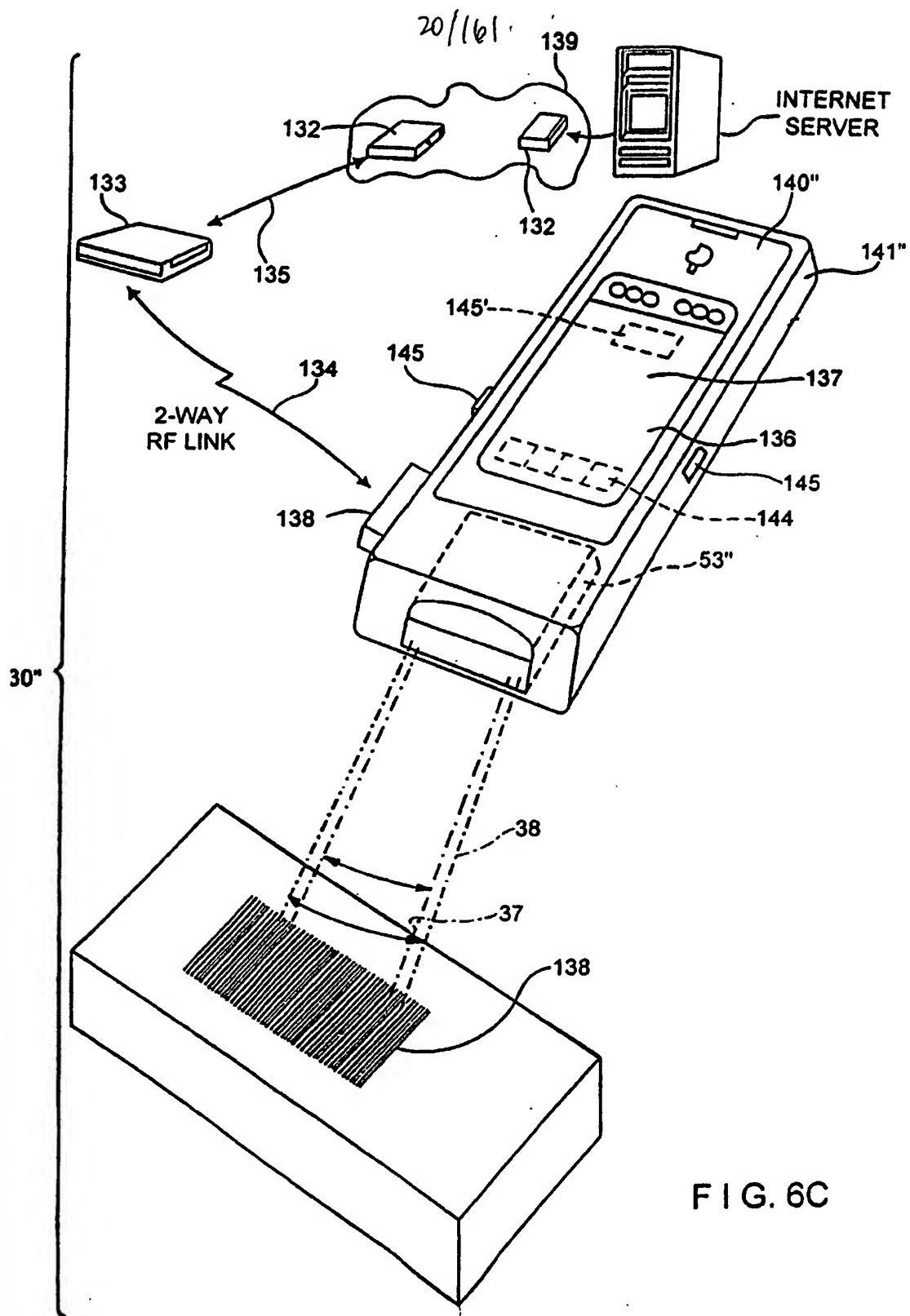


FIG. 6C

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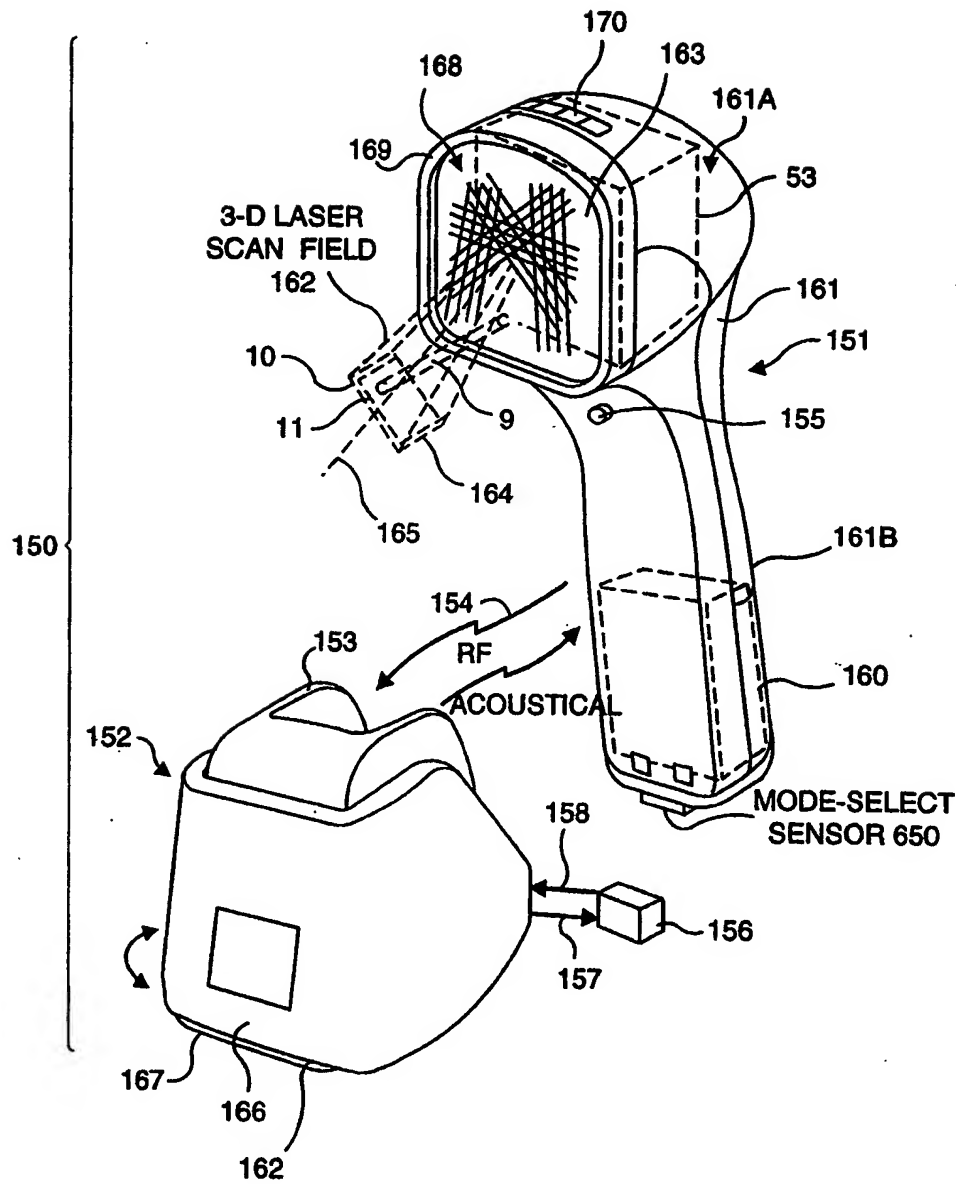


FIG. 7A

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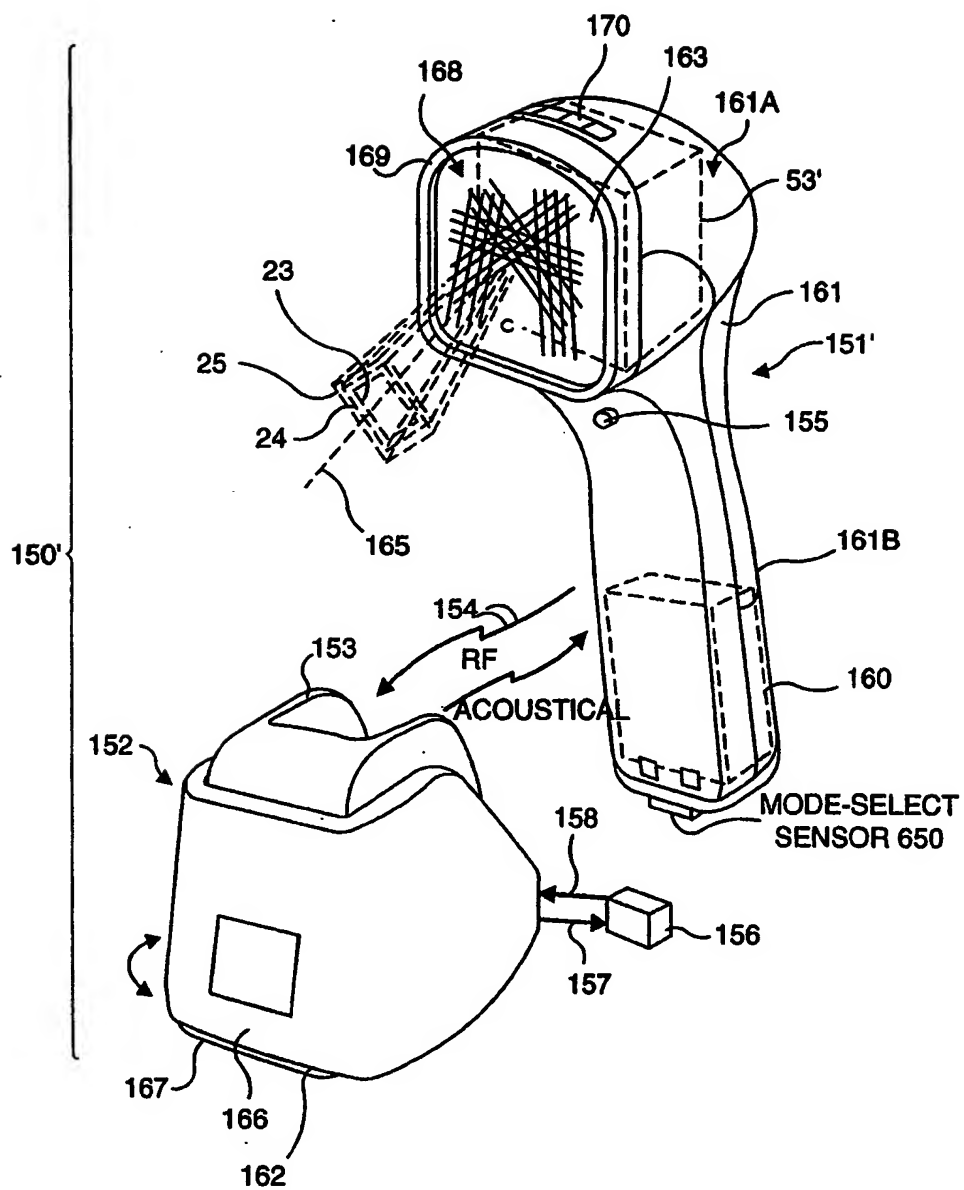


FIG. 7B

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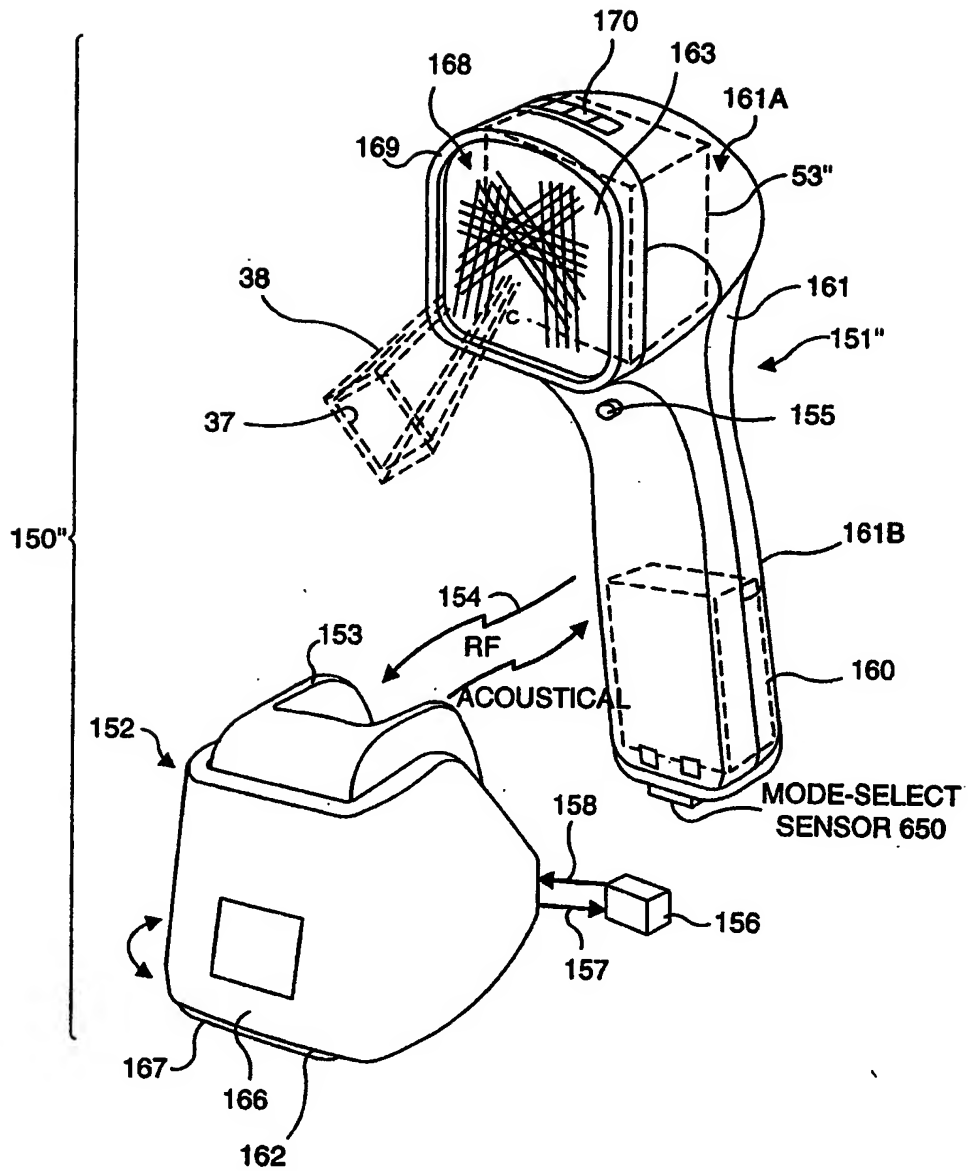


FIG. 7C

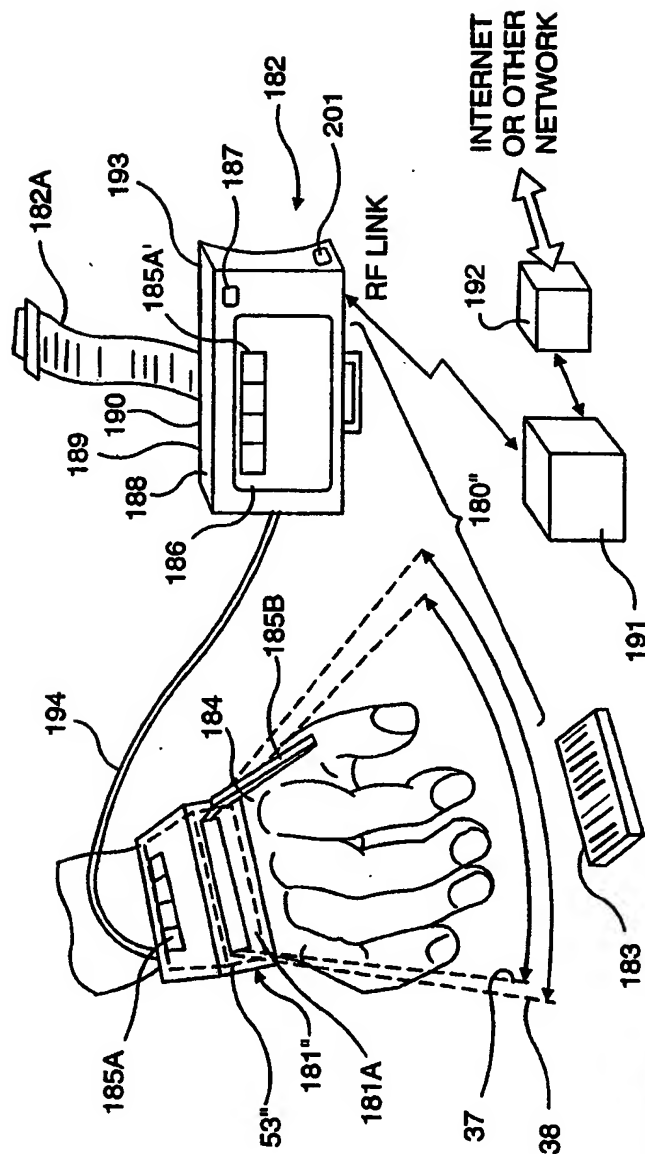


FIG. 8C

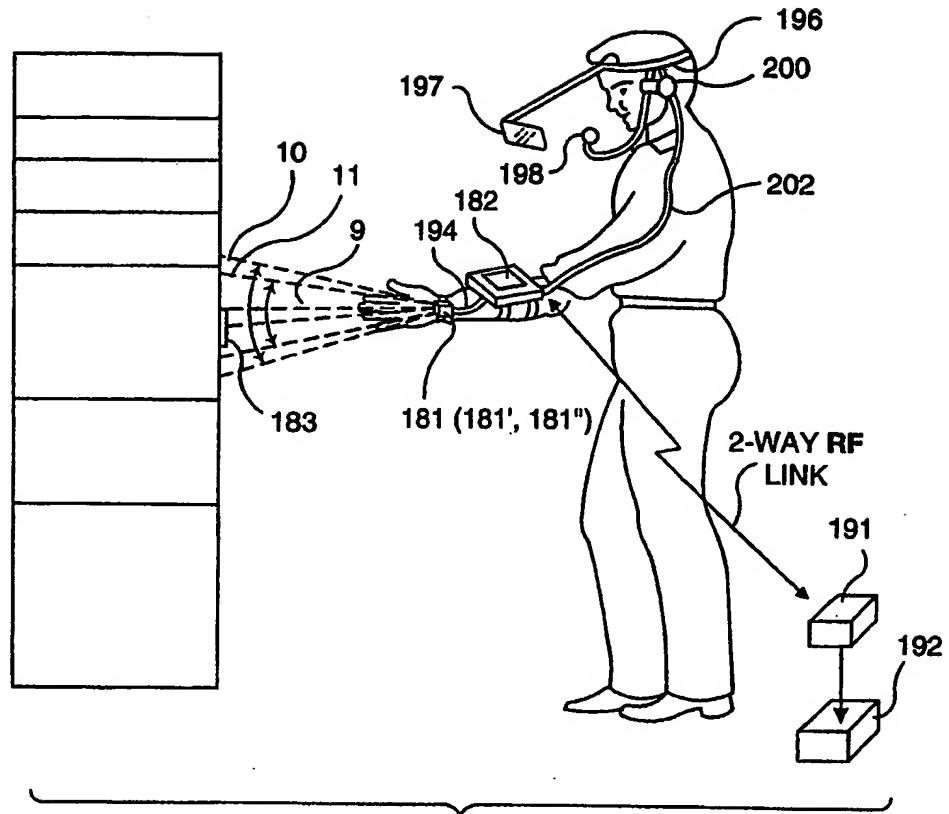
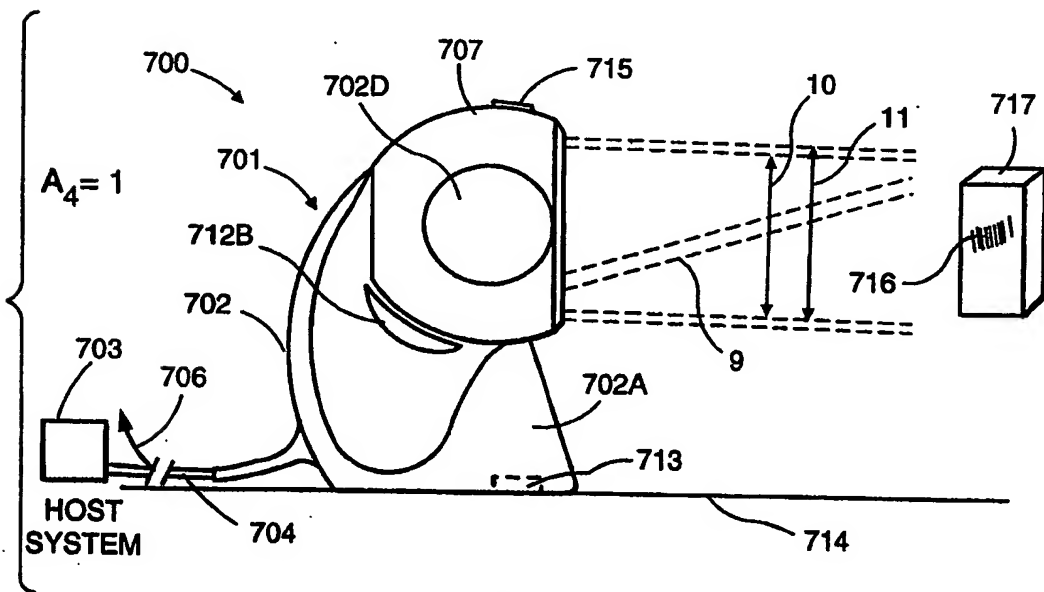
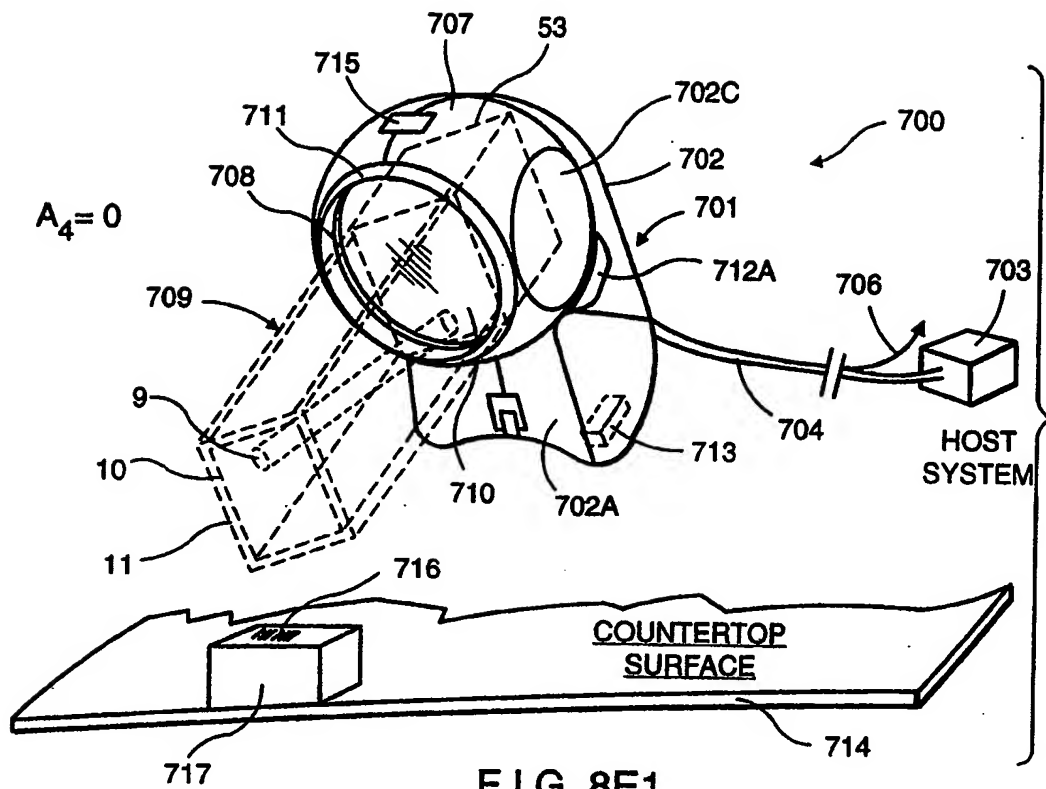


FIG. 8D

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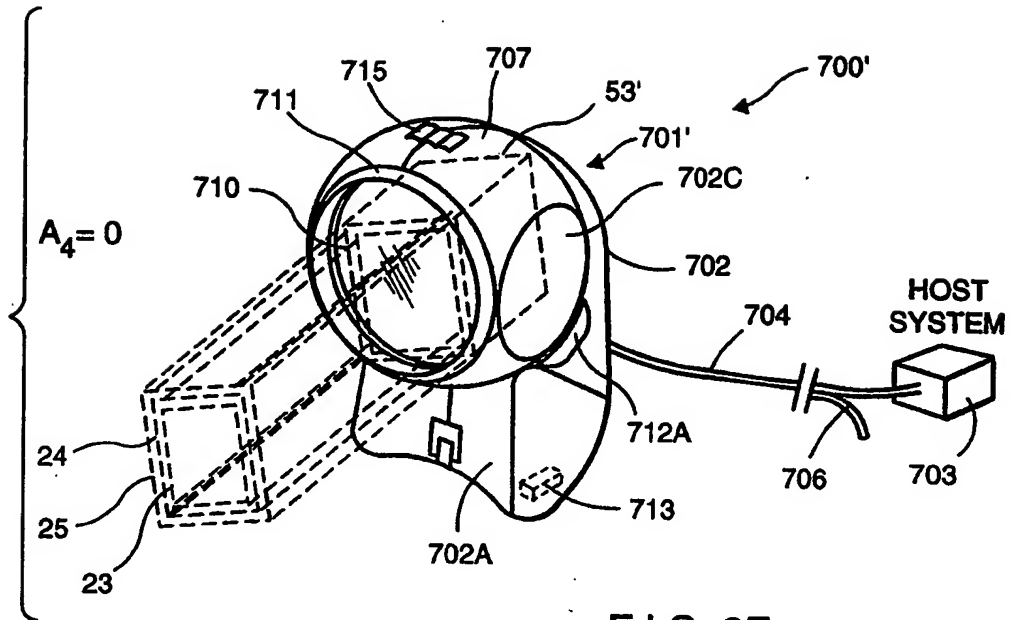


FIG. 8F

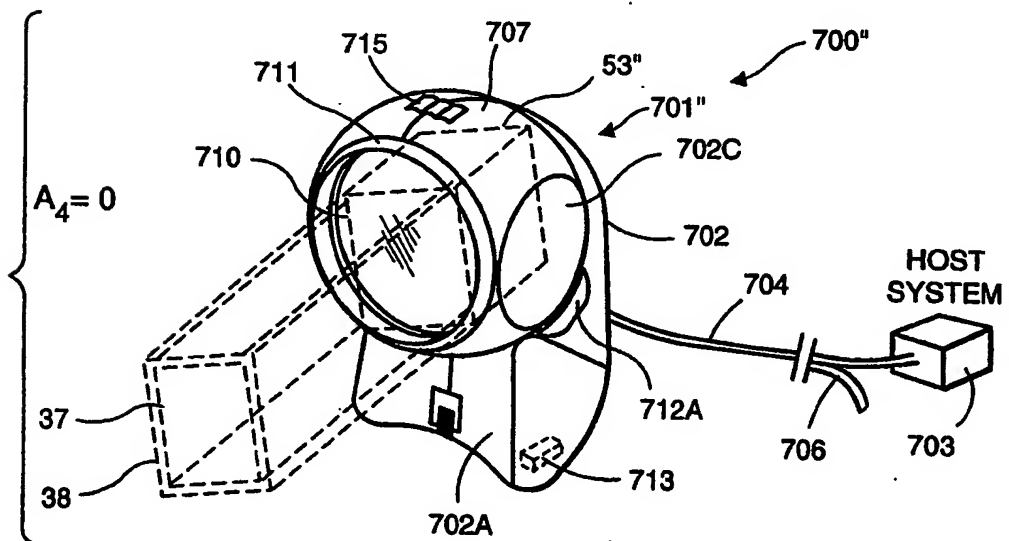


FIG. 8G

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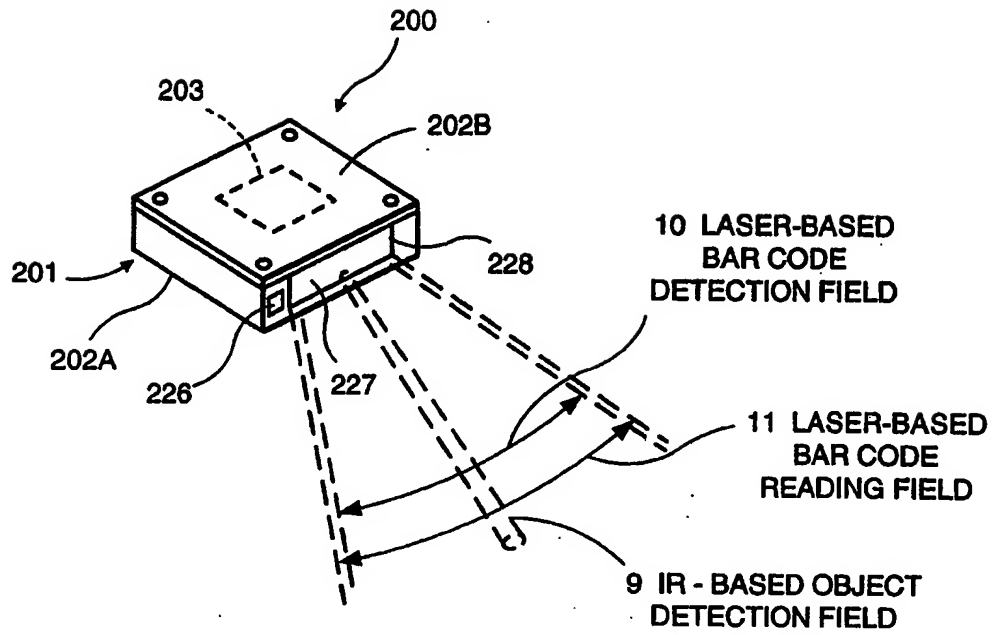


FIG. 9A

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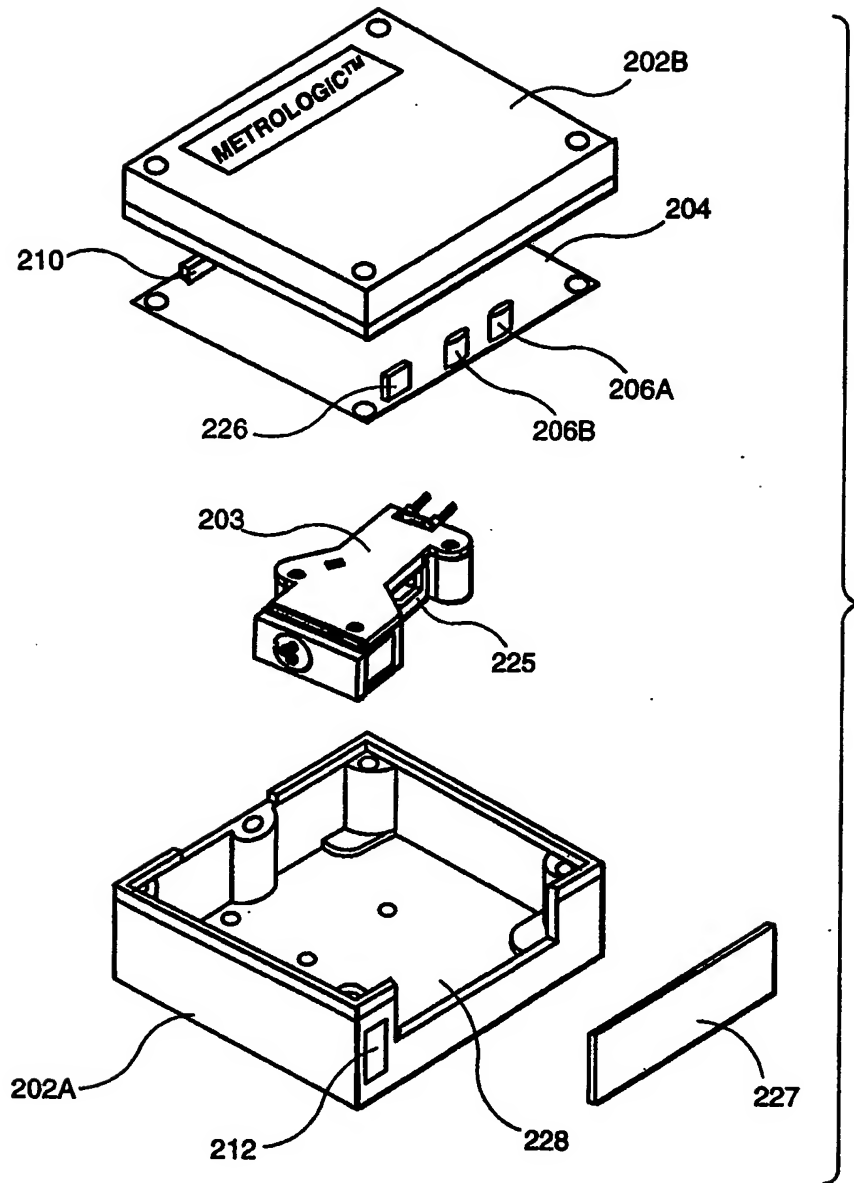


FIG. 9B

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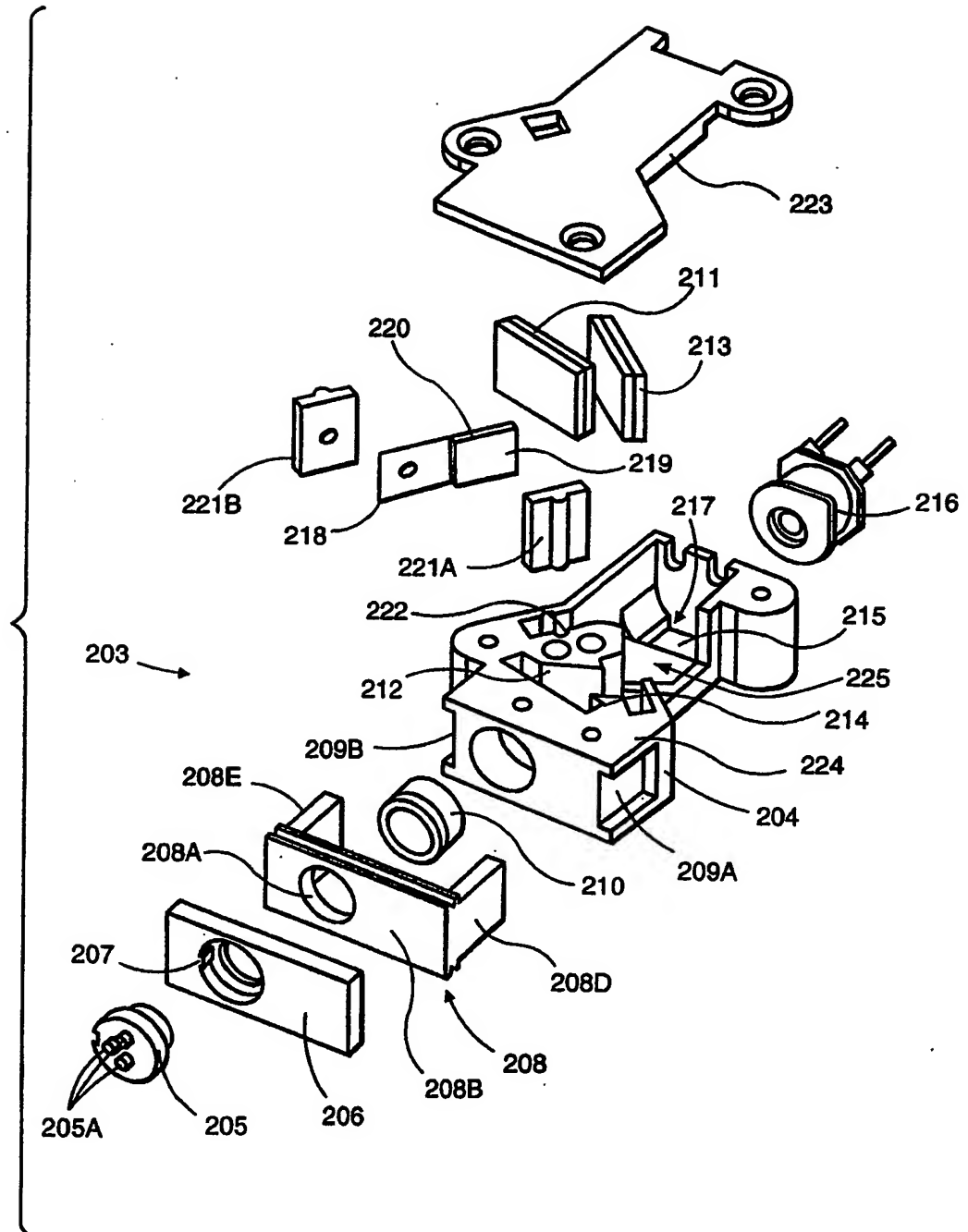


FIG. 9C

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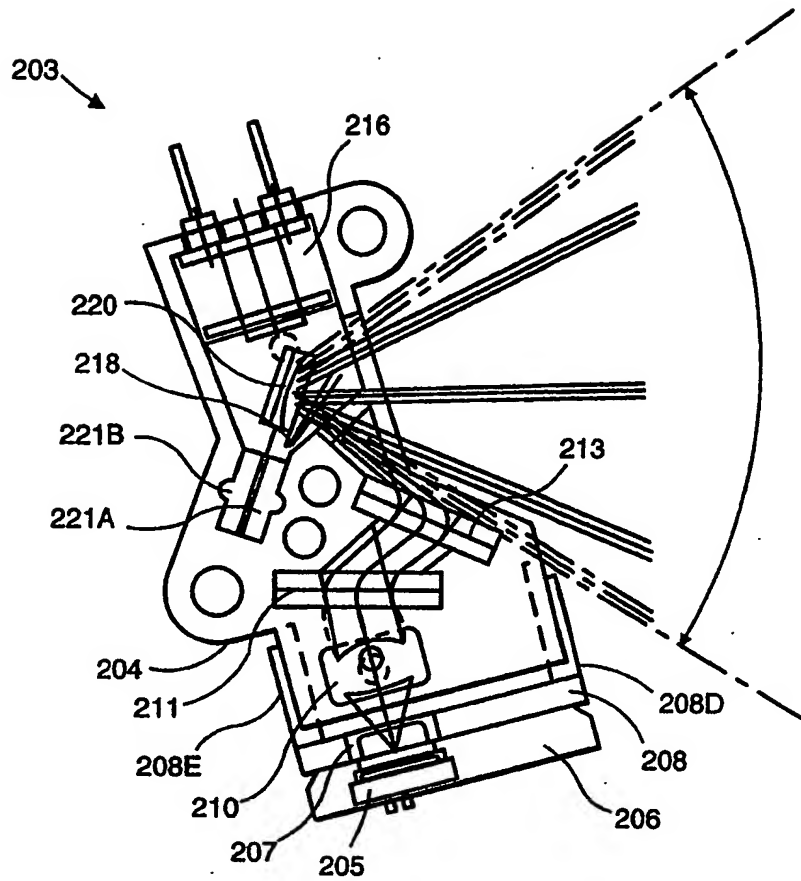


FIG. 9D

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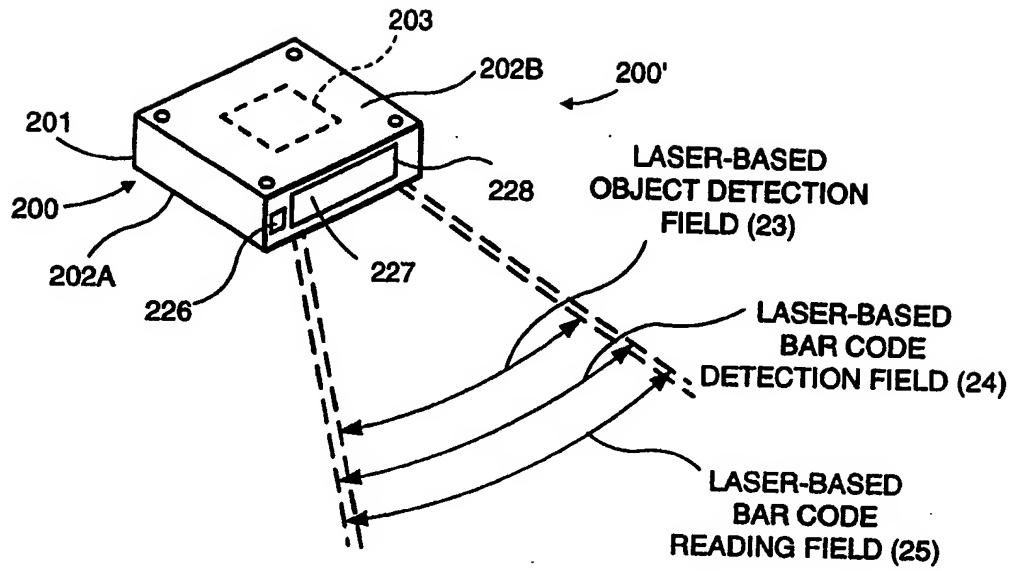


FIG. 9E

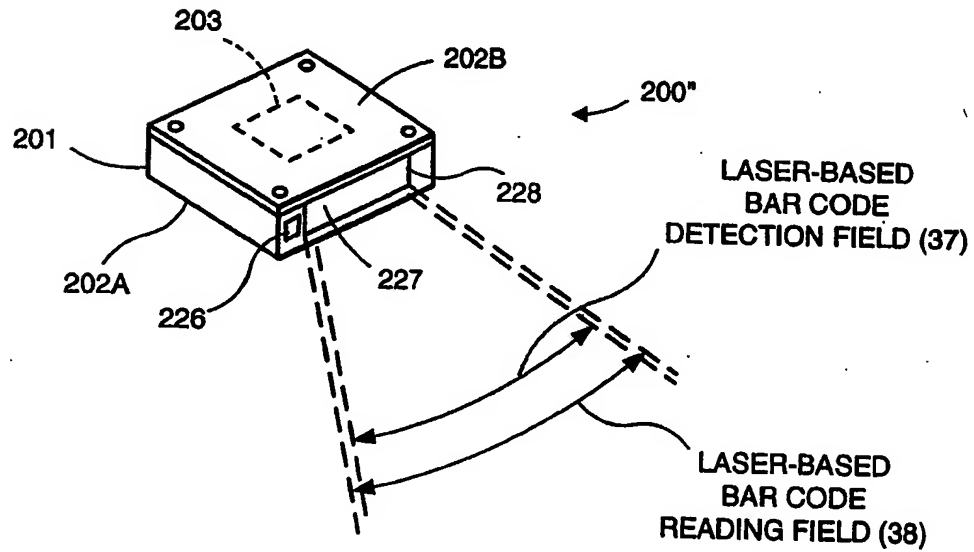


FIG. 9F

FIG. 10A

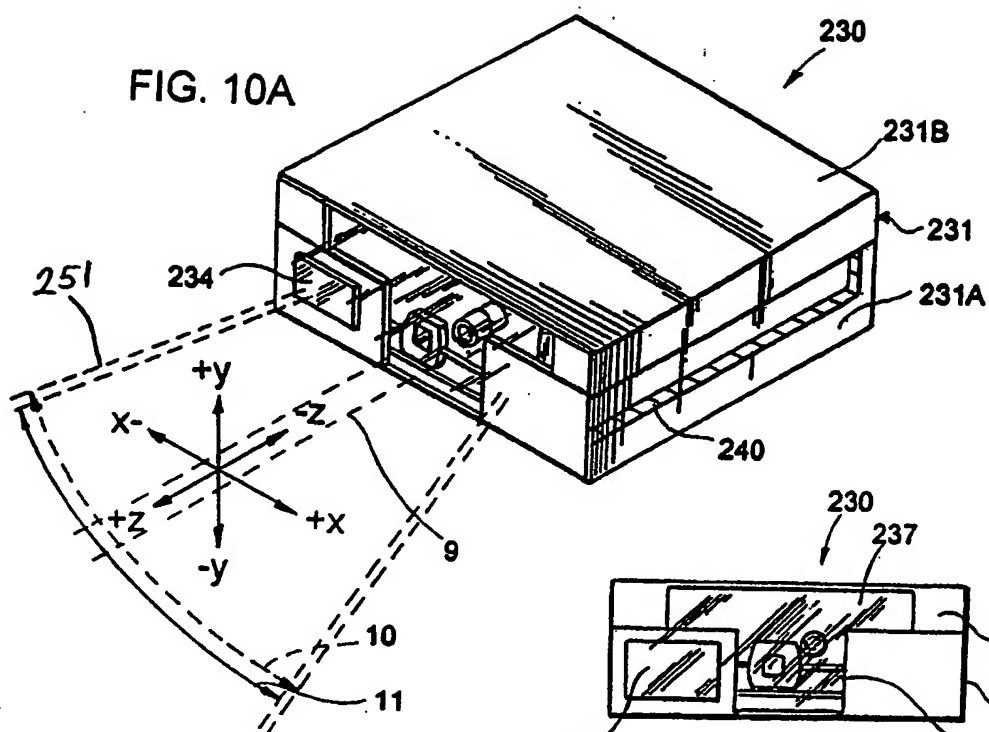


FIG. 10B

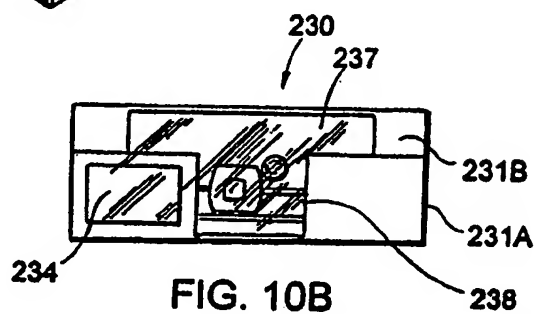


FIG. 10C

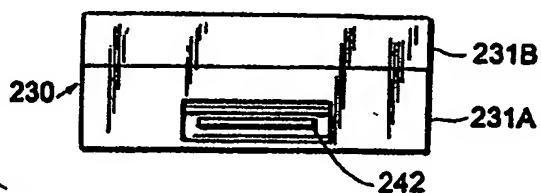
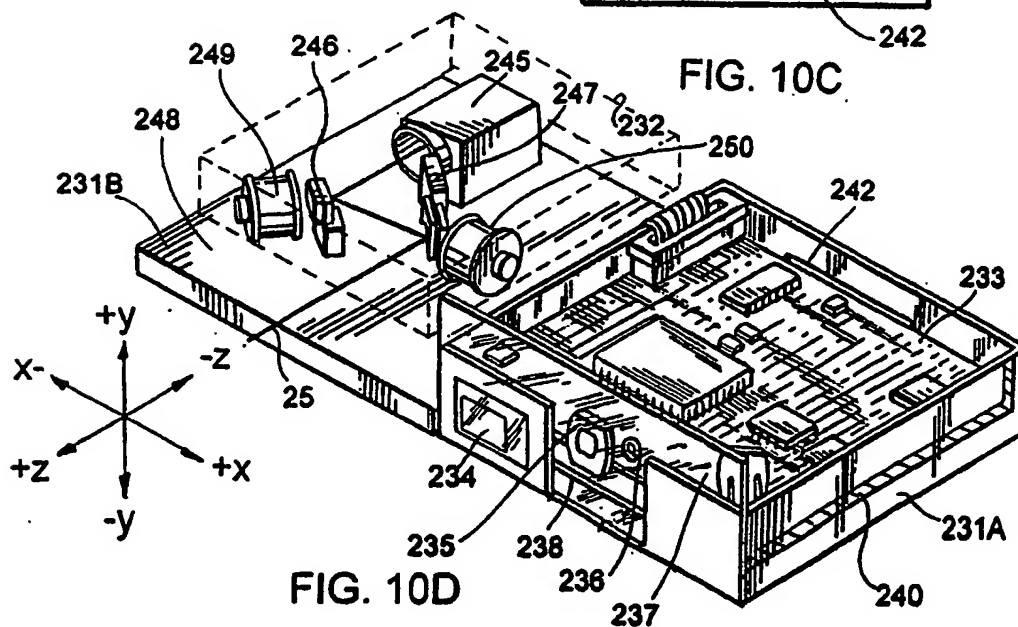


FIG. 10D



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FIG. 10E

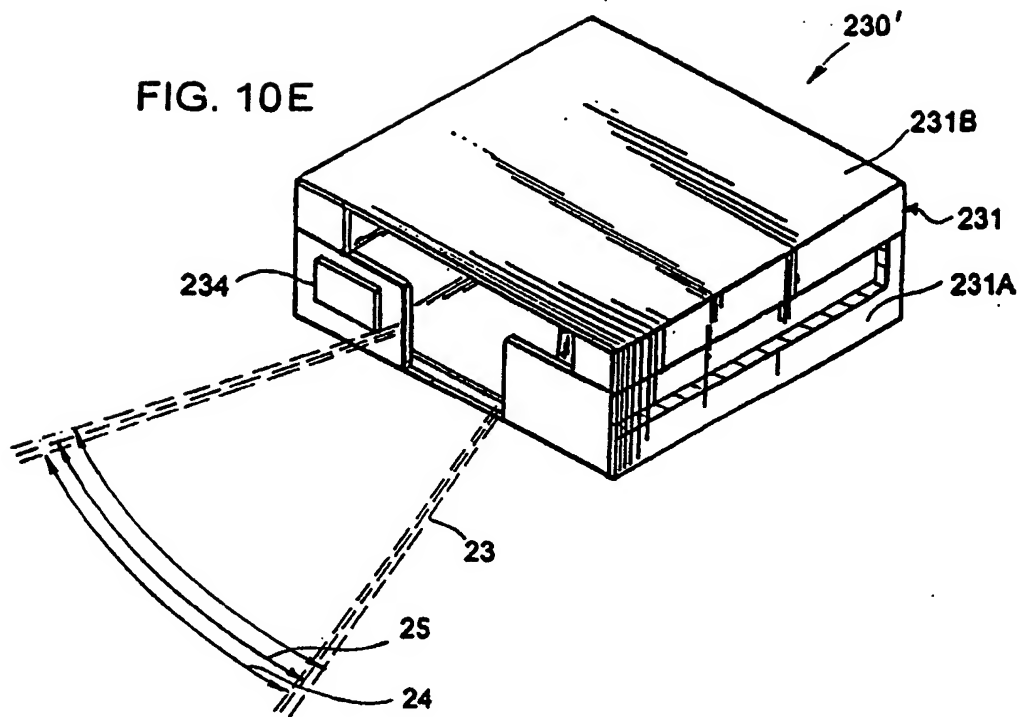
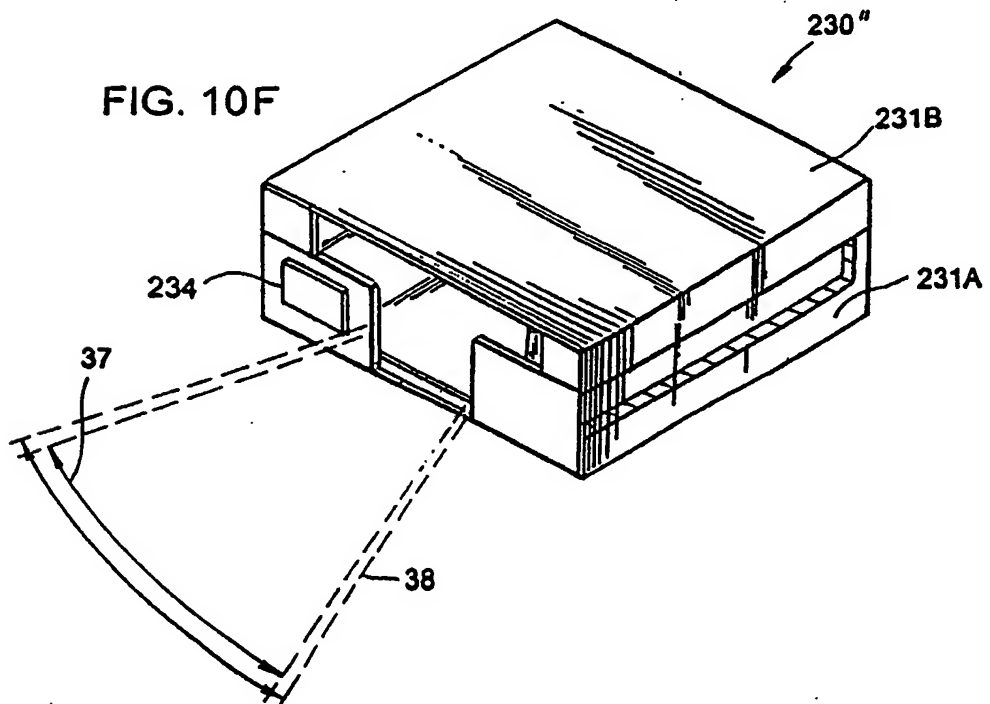


FIG. 10F



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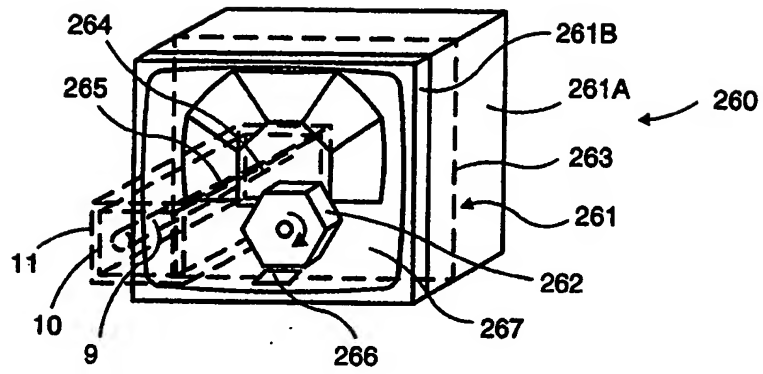


FIG. 11A

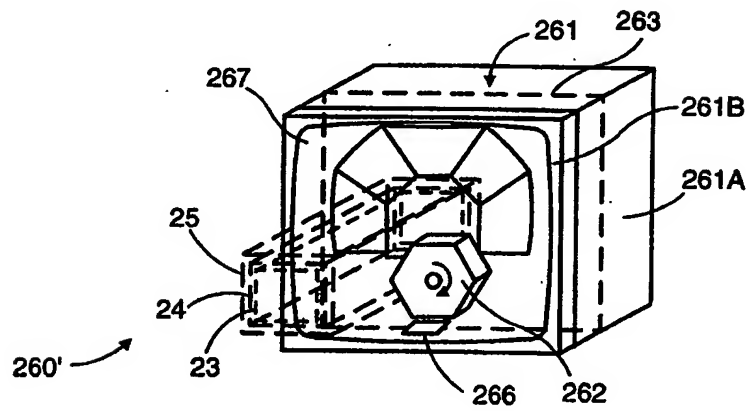


FIG. 11B

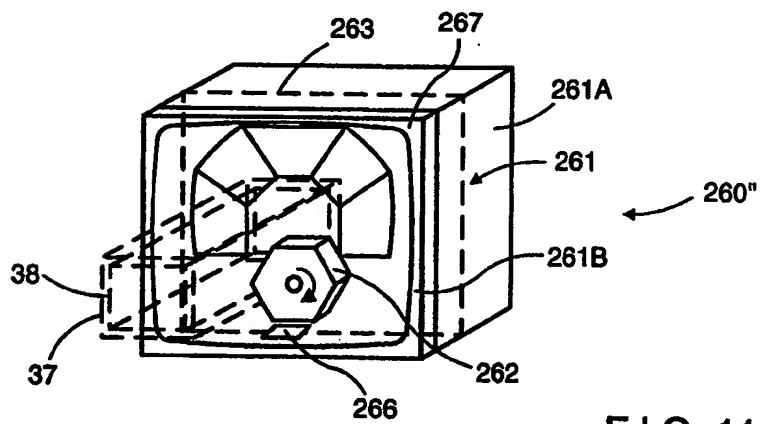


FIG. 11C

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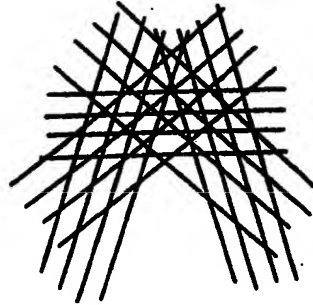


FIG. 12A

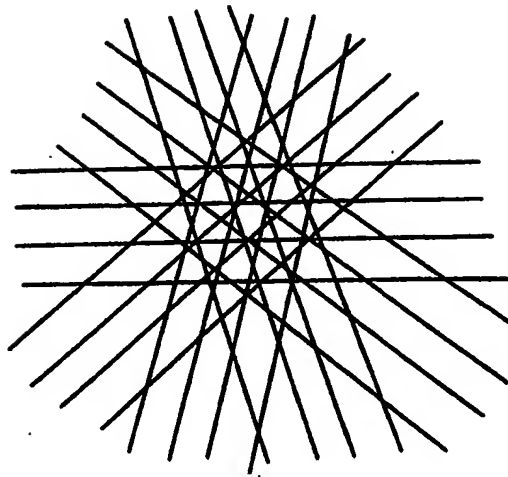


FIG. 12B

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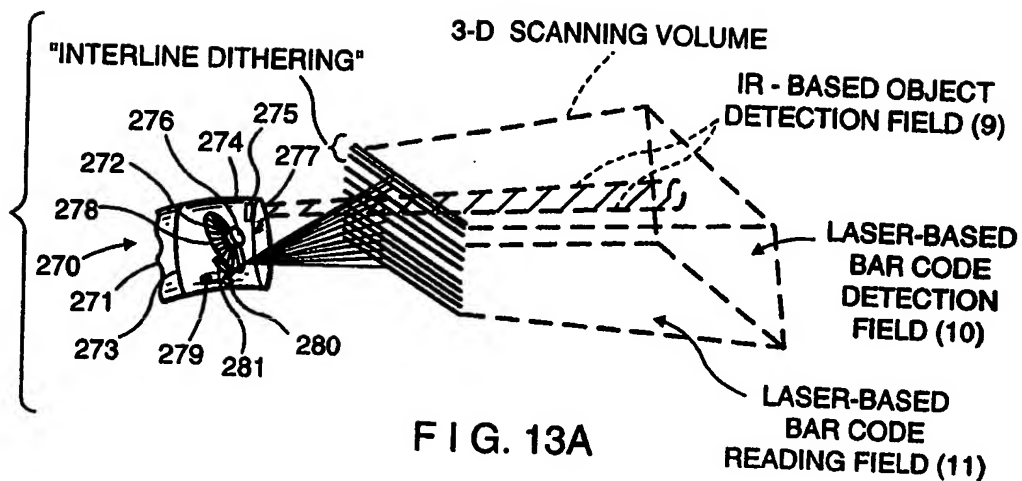


FIG. 13A

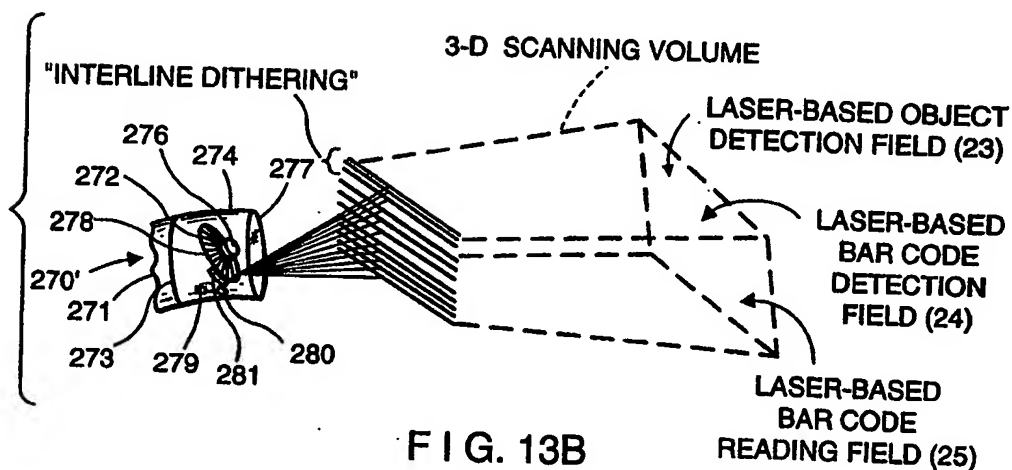


FIG. 13B

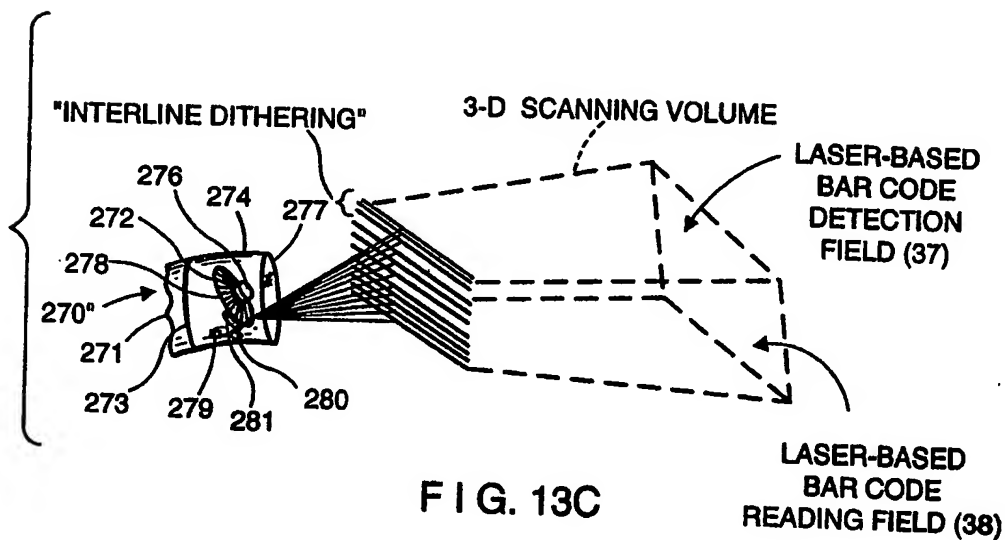


FIG. 13C

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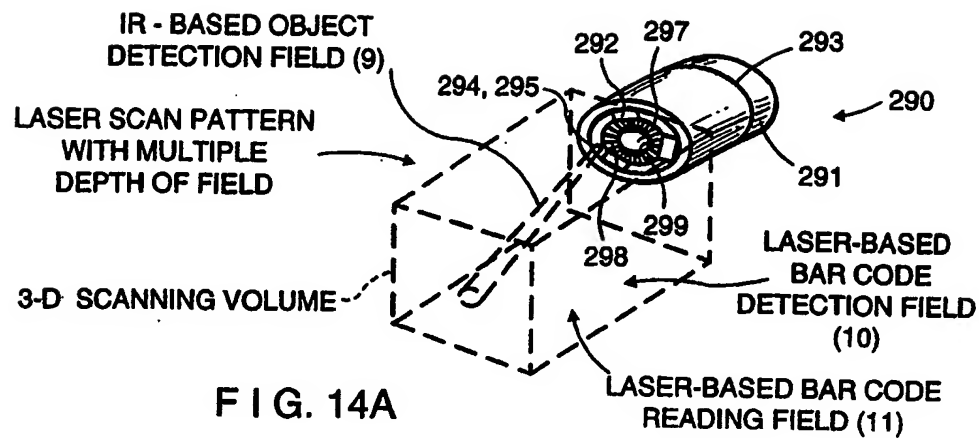


FIG. 14A

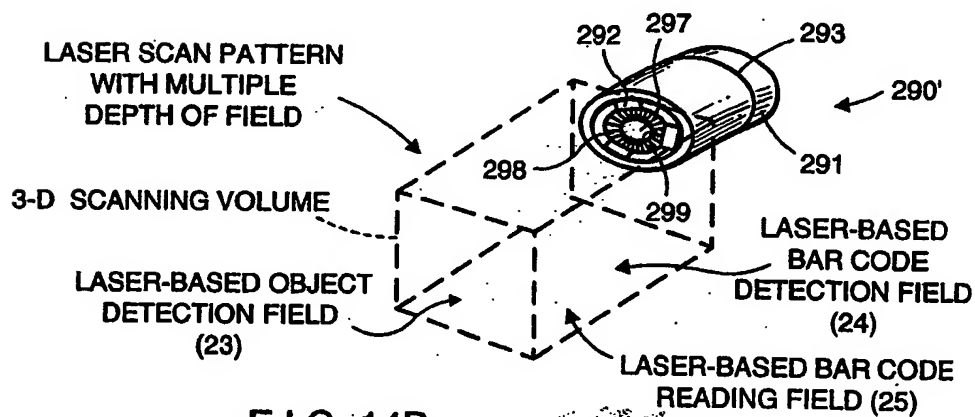


FIG. 14B

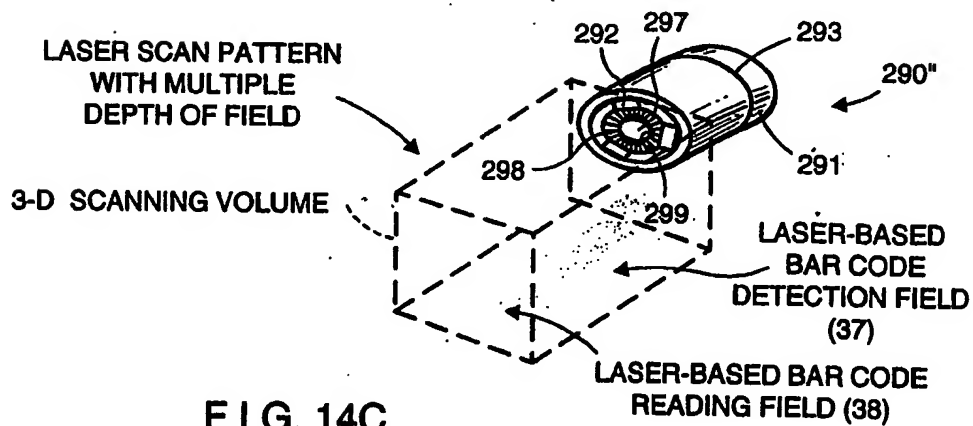


FIG. 14C

[illegible]

FIG. 15A1

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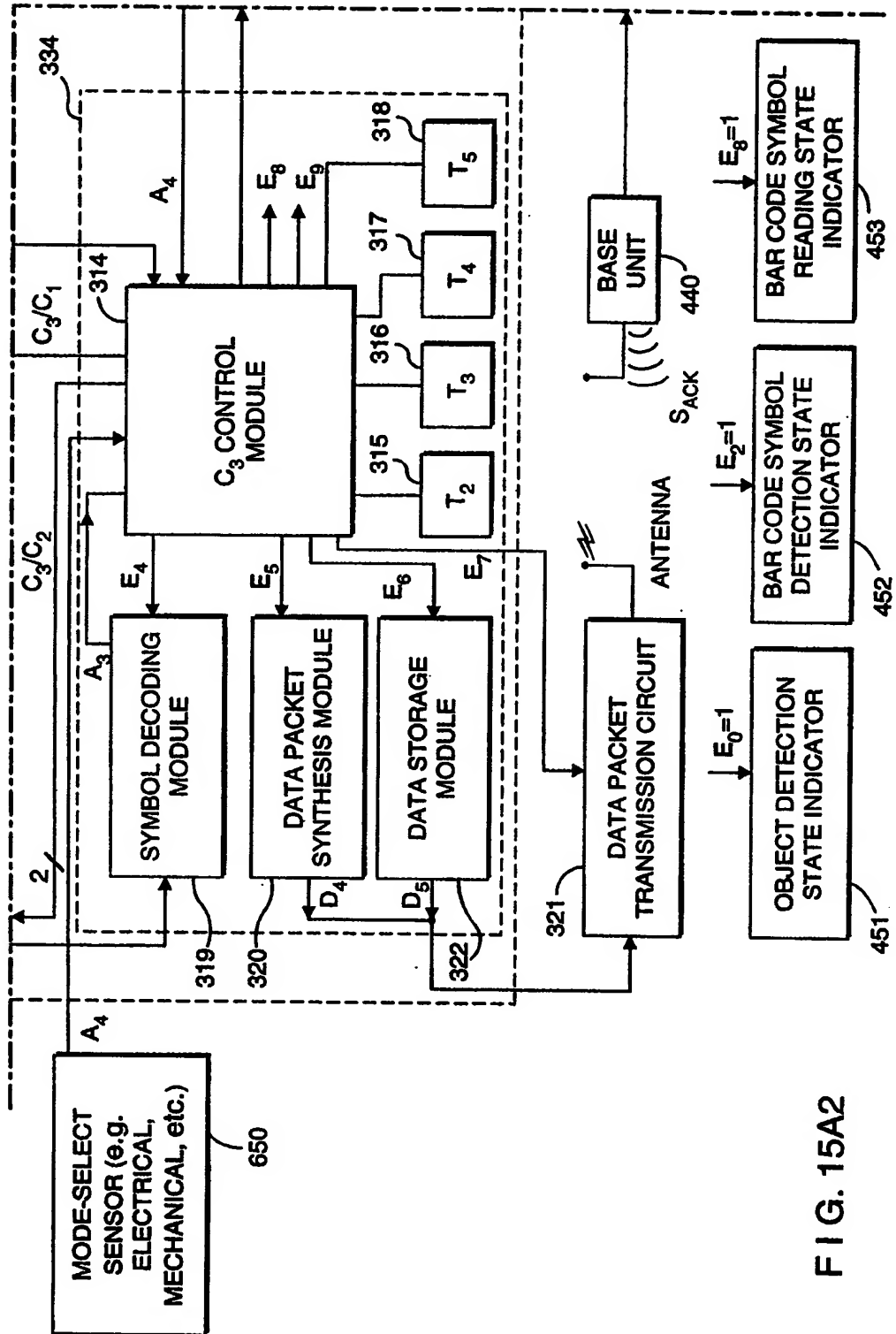


FIG. 15A2

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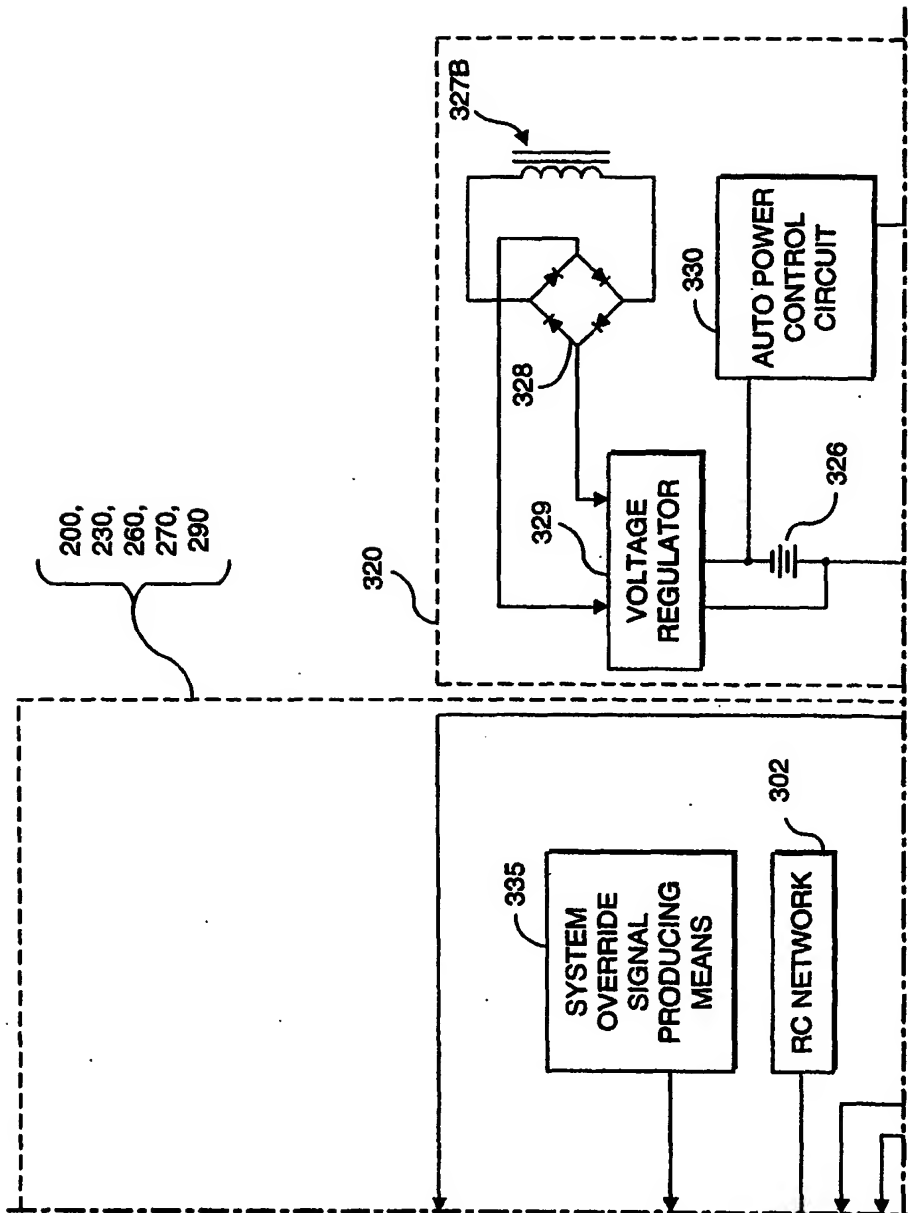


FIG. 15A3

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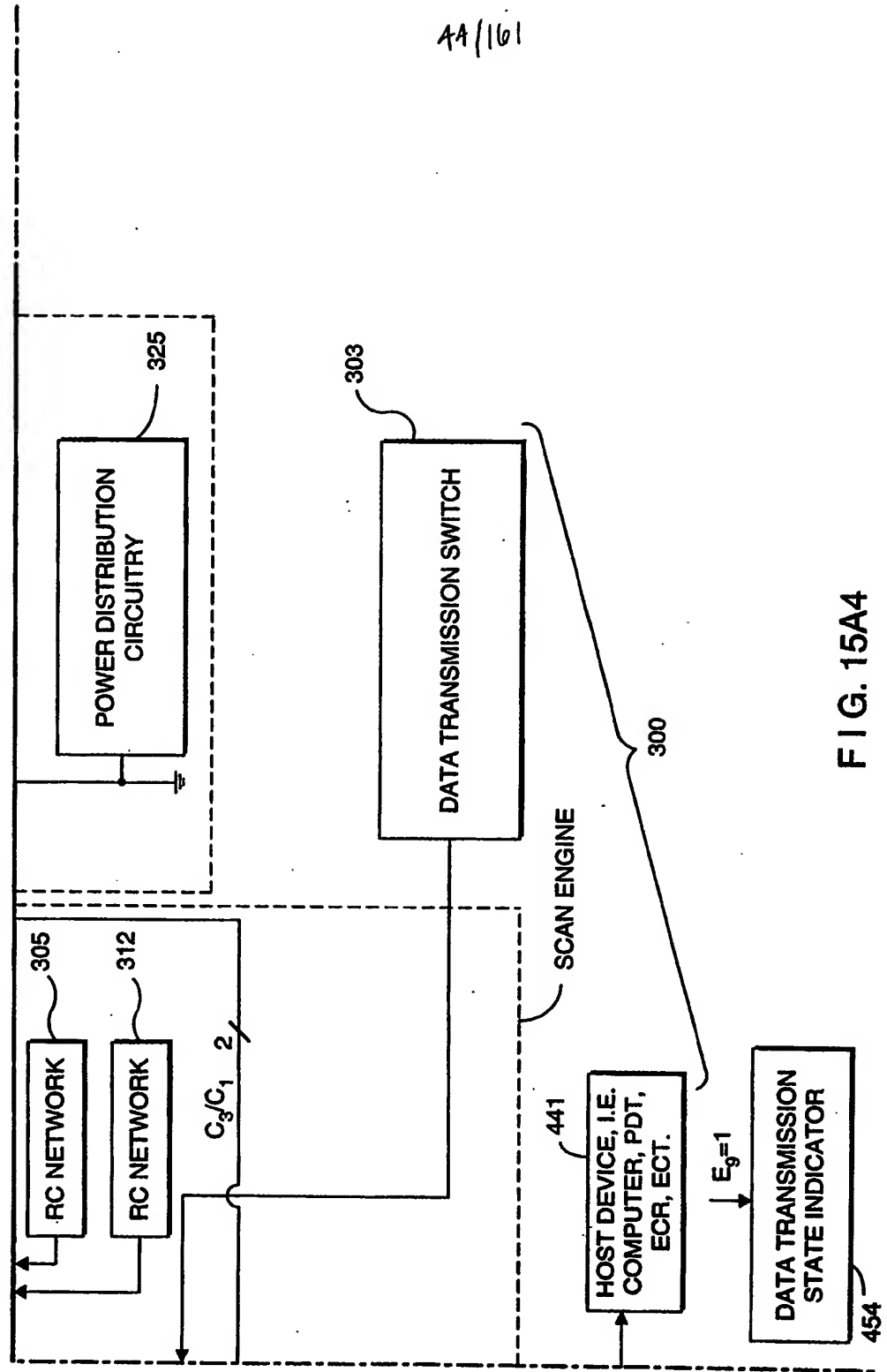


FIG. 15A4

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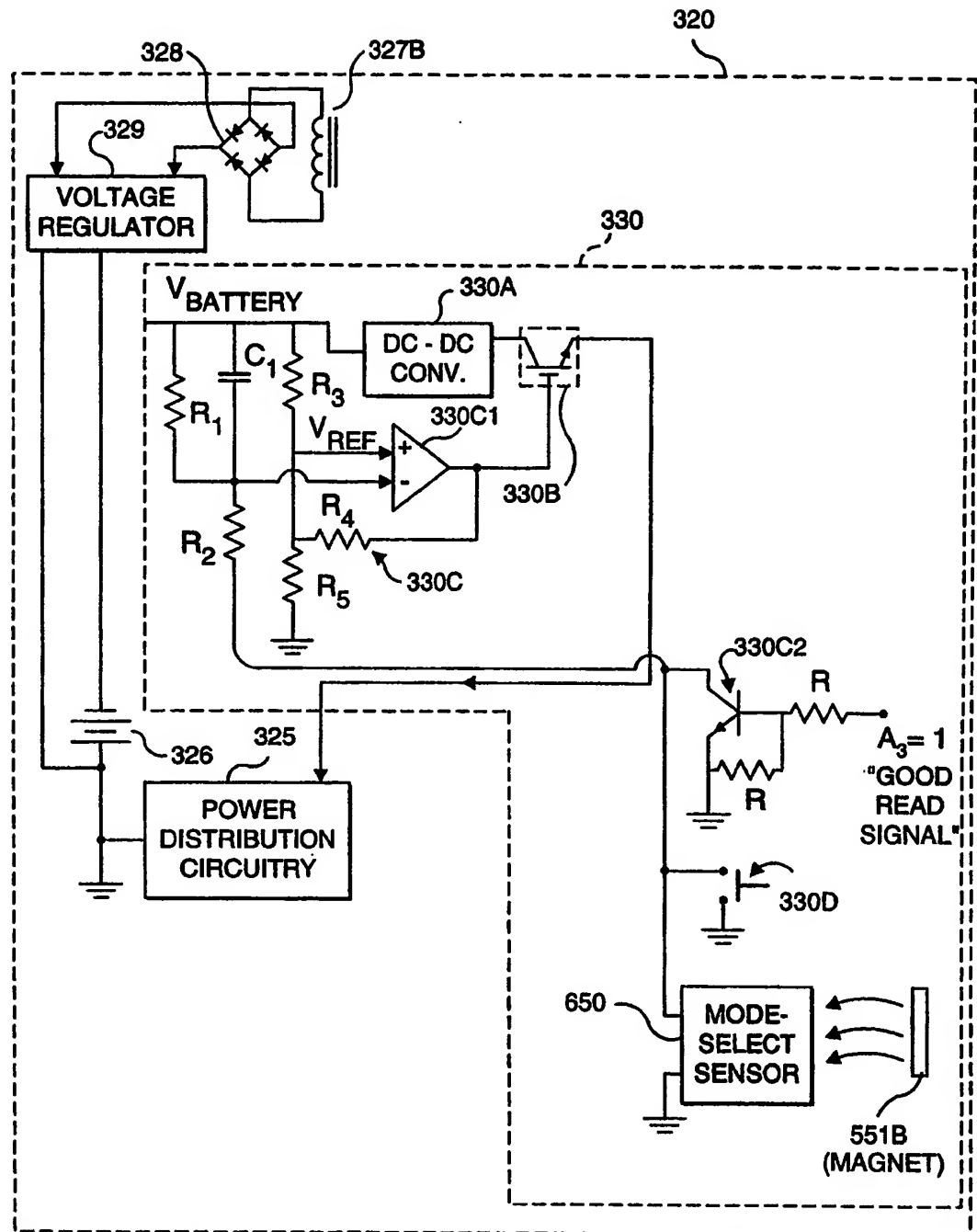


FIG. 15B1

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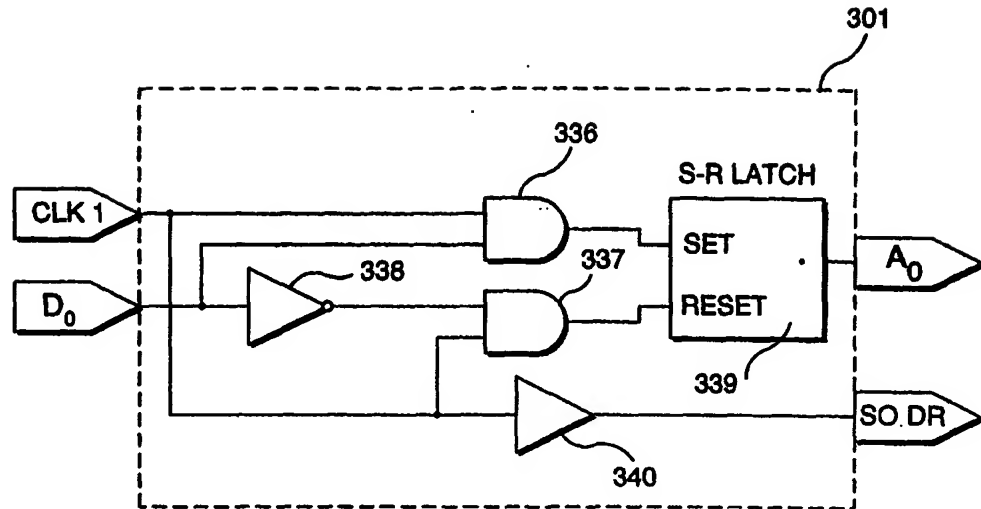


FIG. 15B2

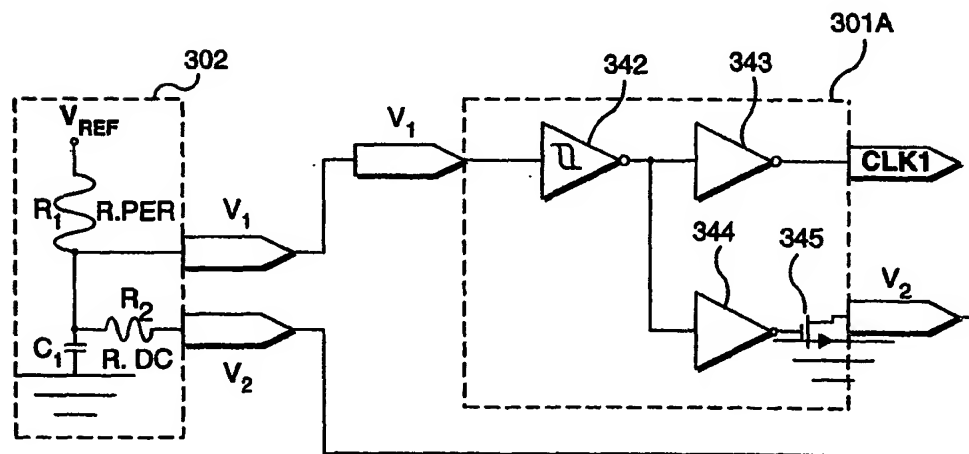


FIG. 15C

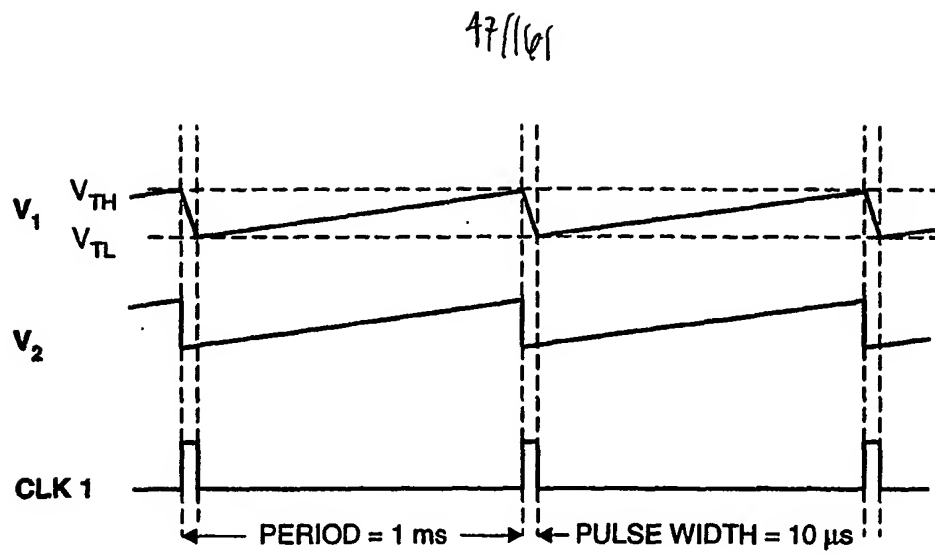


FIG. 15D

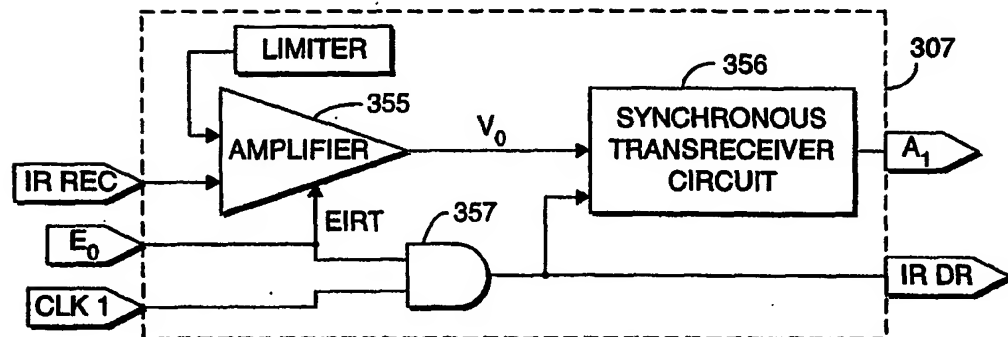


FIG. 15E

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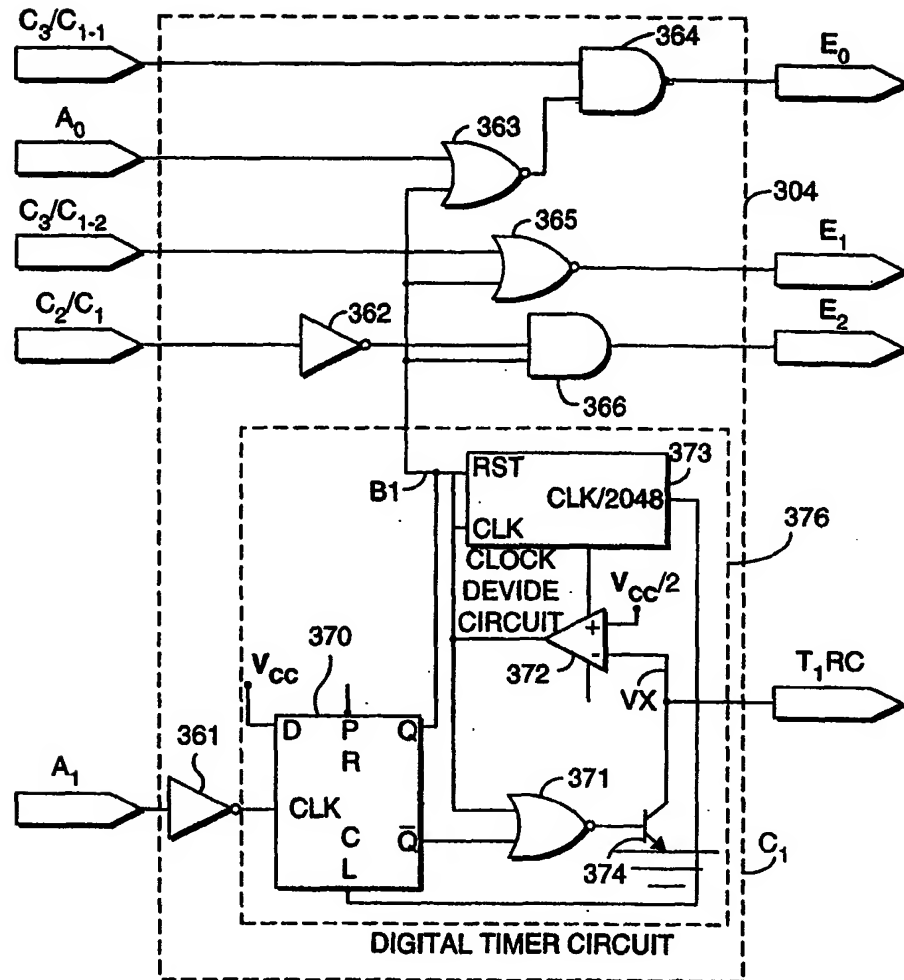


FIG. 15F

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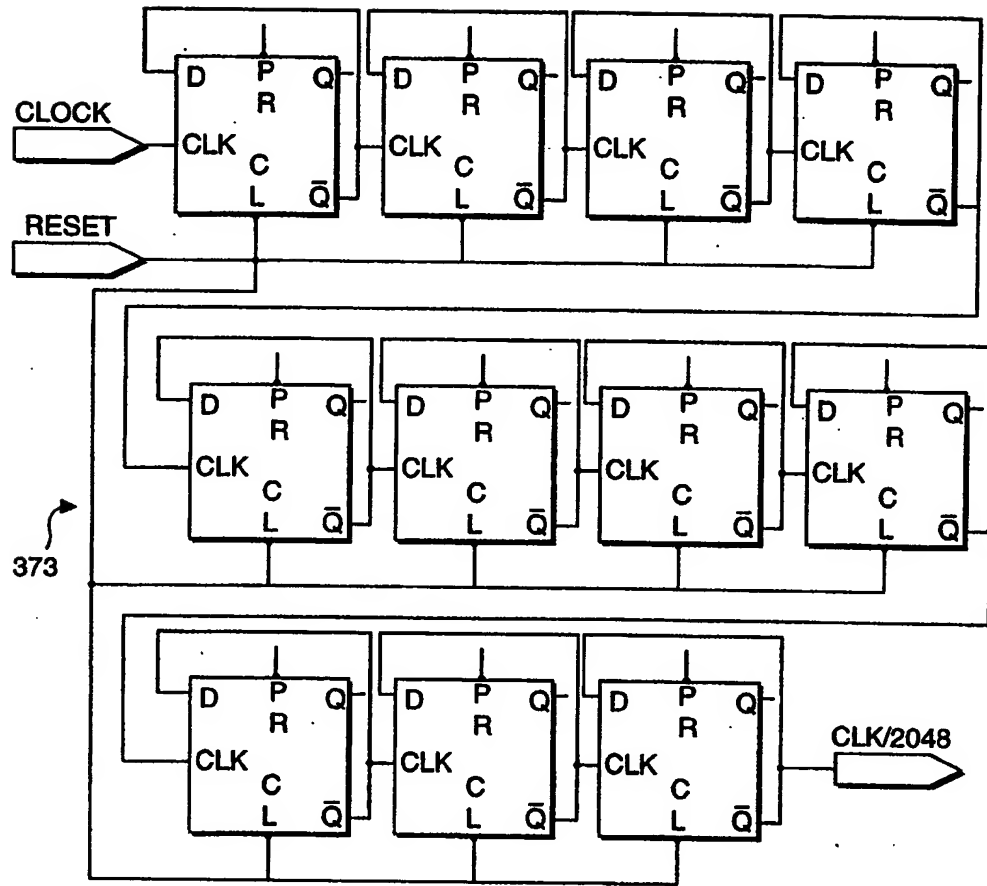


FIG. 15G

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$$\left. \begin{aligned} E_0 &= (B1 + A_0) (C_3 / C_{1-1}) \\ E_1 &= (C_3 / C_{1-2}) + B1 \\ E_2 &= (C_2 / C_1) (T_1) \end{aligned} \right\}$$

FIG. 15H

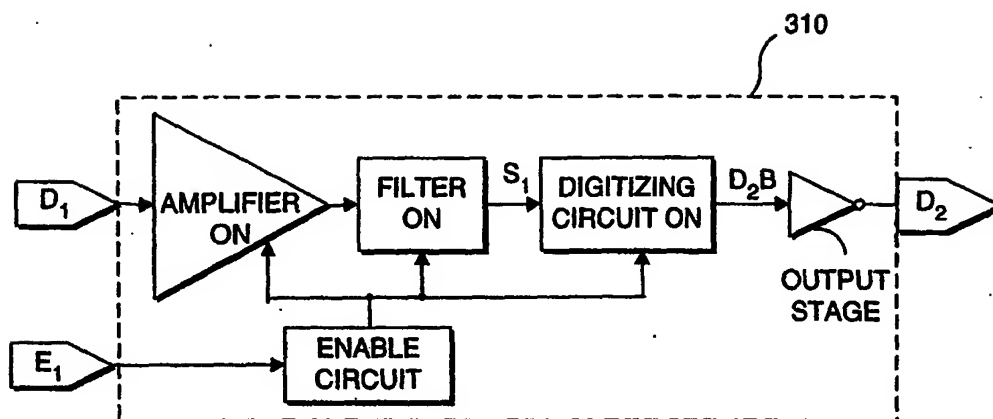


FIG. 15I

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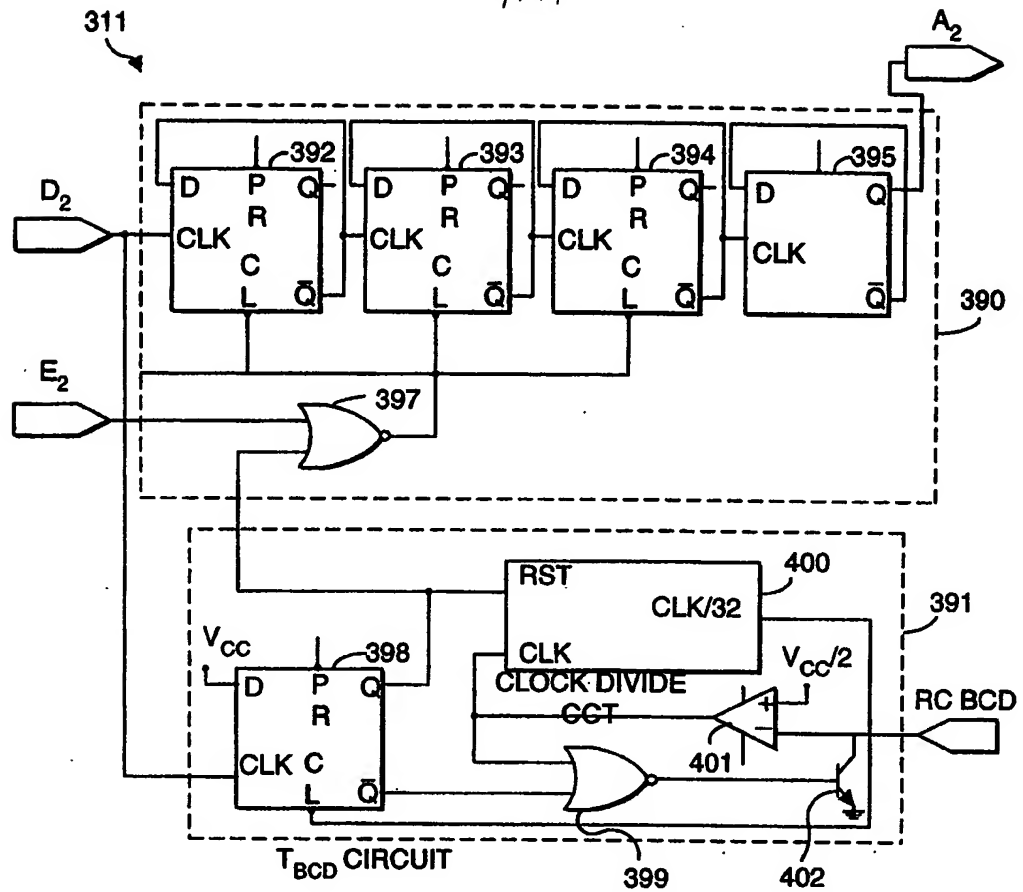


FIG. 15J

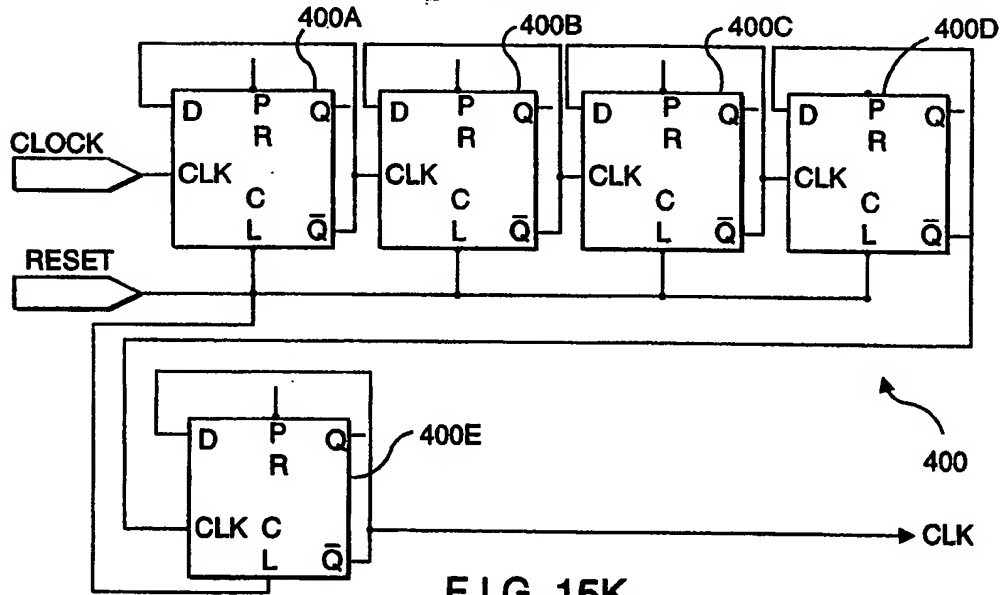


FIG. 15K

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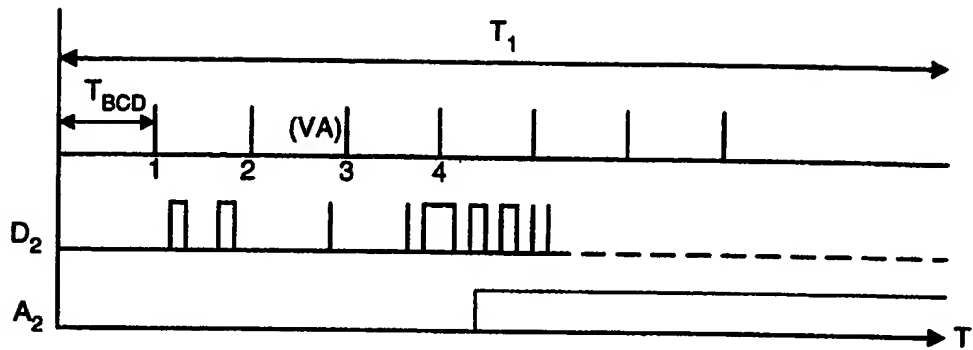


FIG. 15L

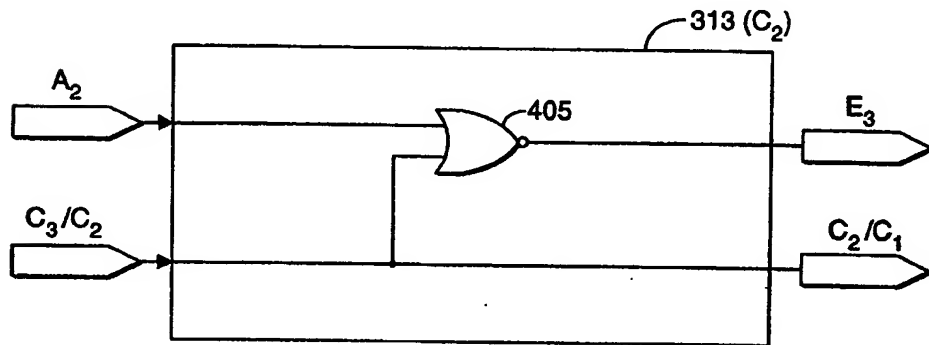


FIG. 15M

C_3/C_2	A_2	E_3	C_2/C_1
0	0	0	0
0	1	1	0
1	X	1	1

X: DON'T CARE (I.E. C_3/C_2 OVERRIDES A_2)

FIG. 15N

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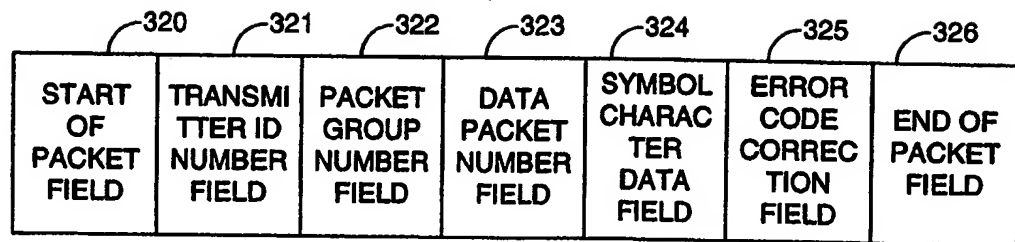


FIG. 150

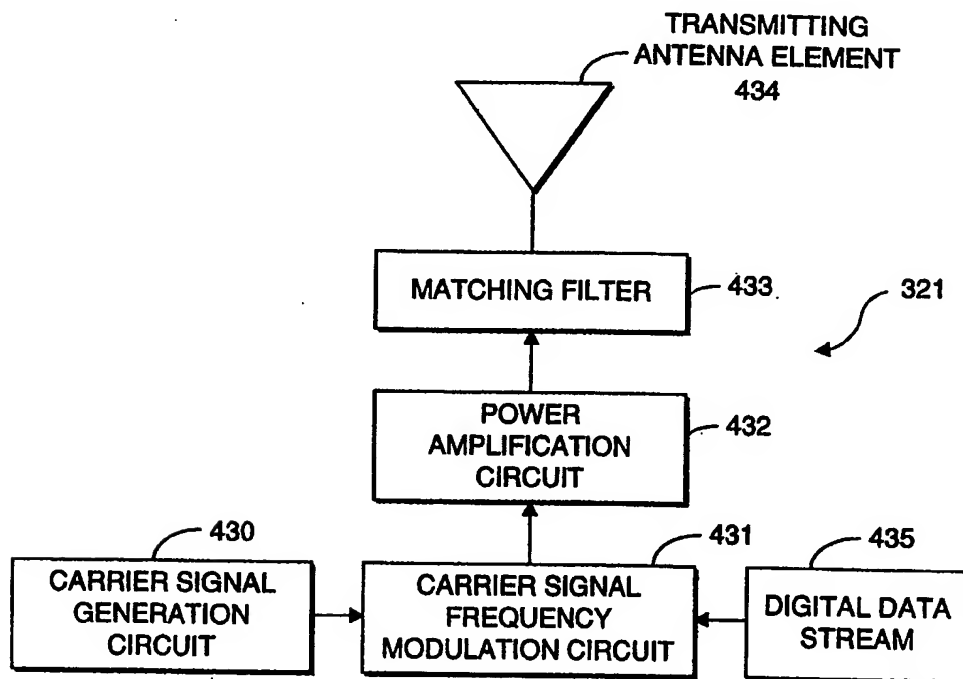


FIG. 16

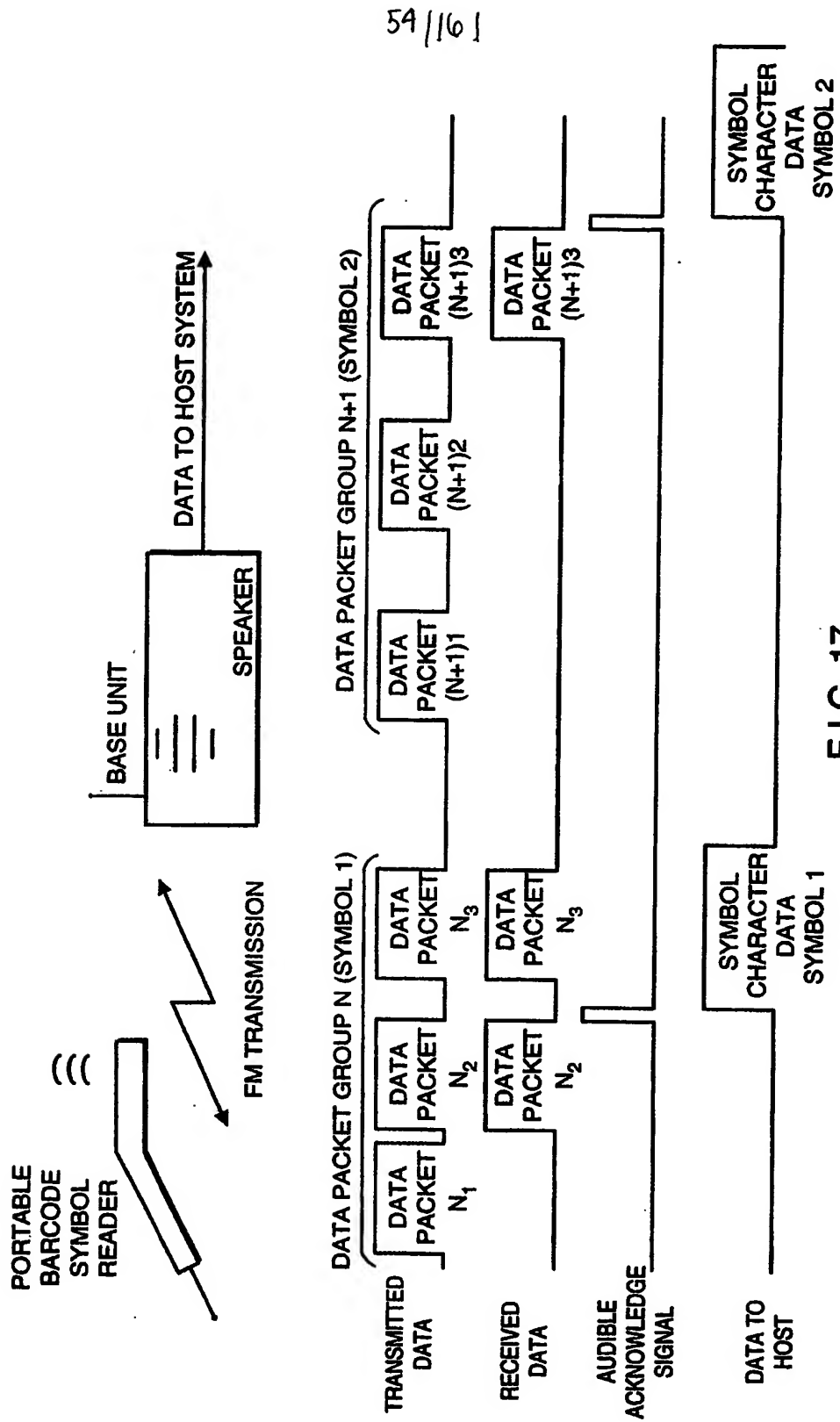


FIG. 17

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FIG. 18



FIG. 19

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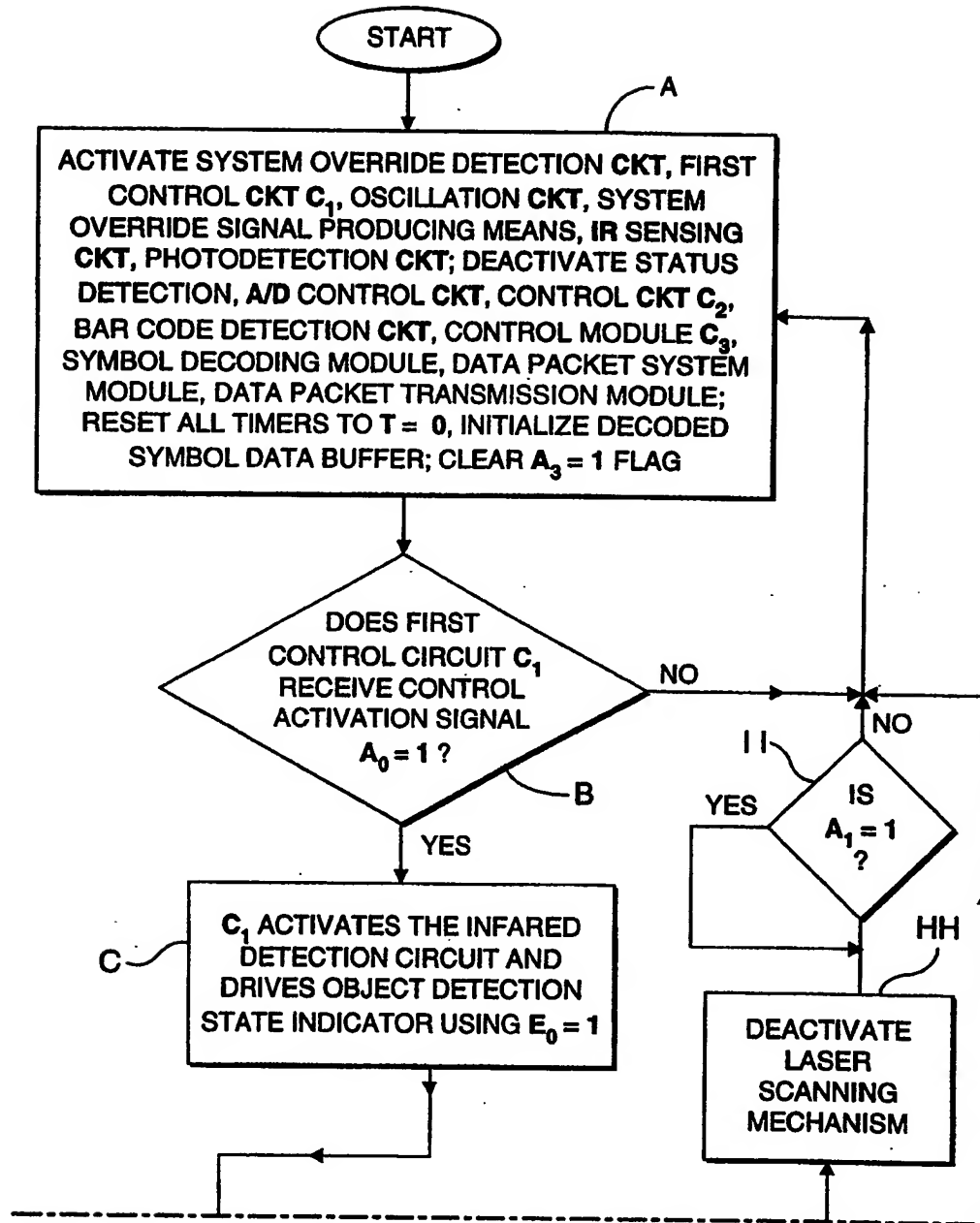


FIG. 20A1

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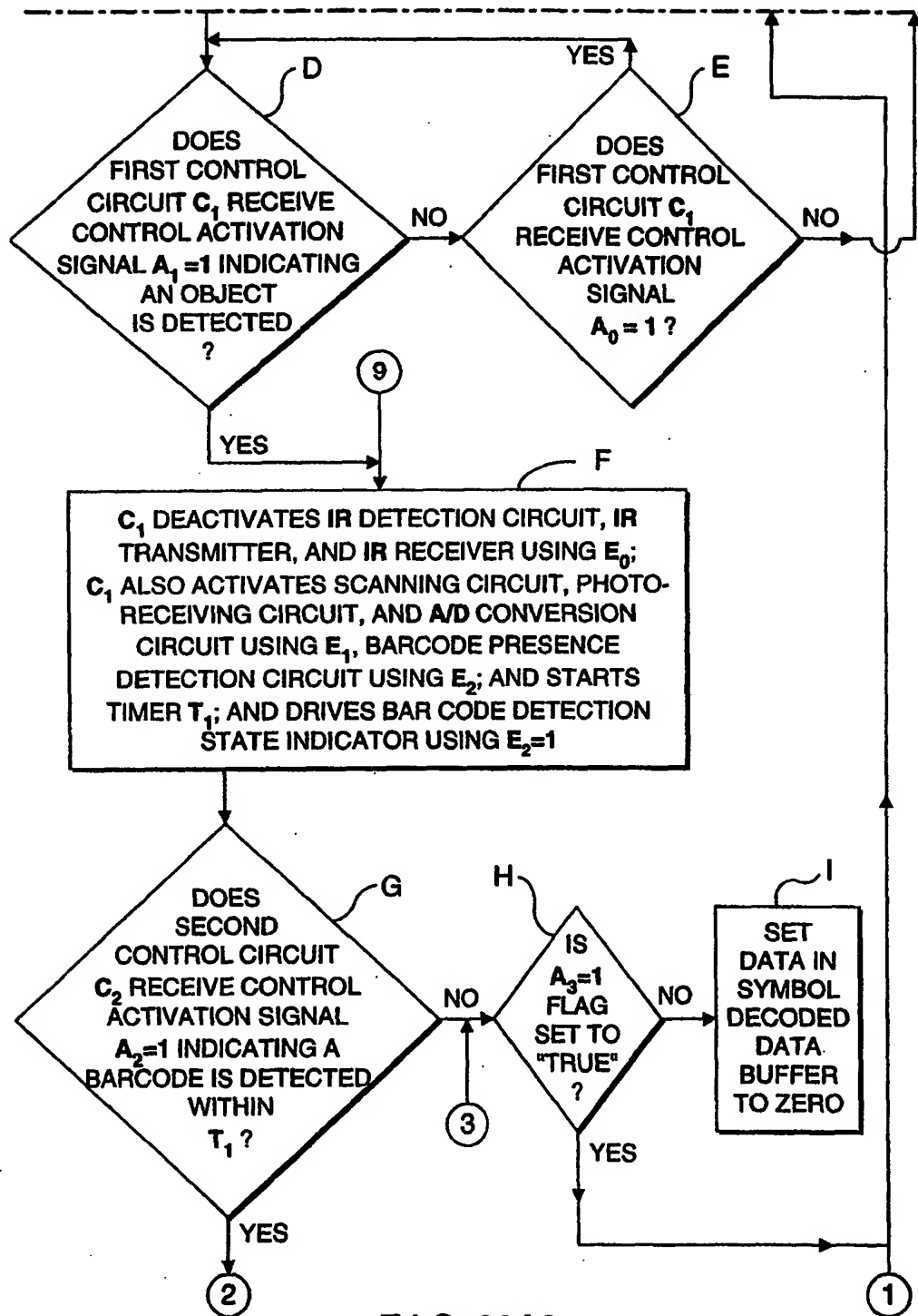


FIG. 20A2

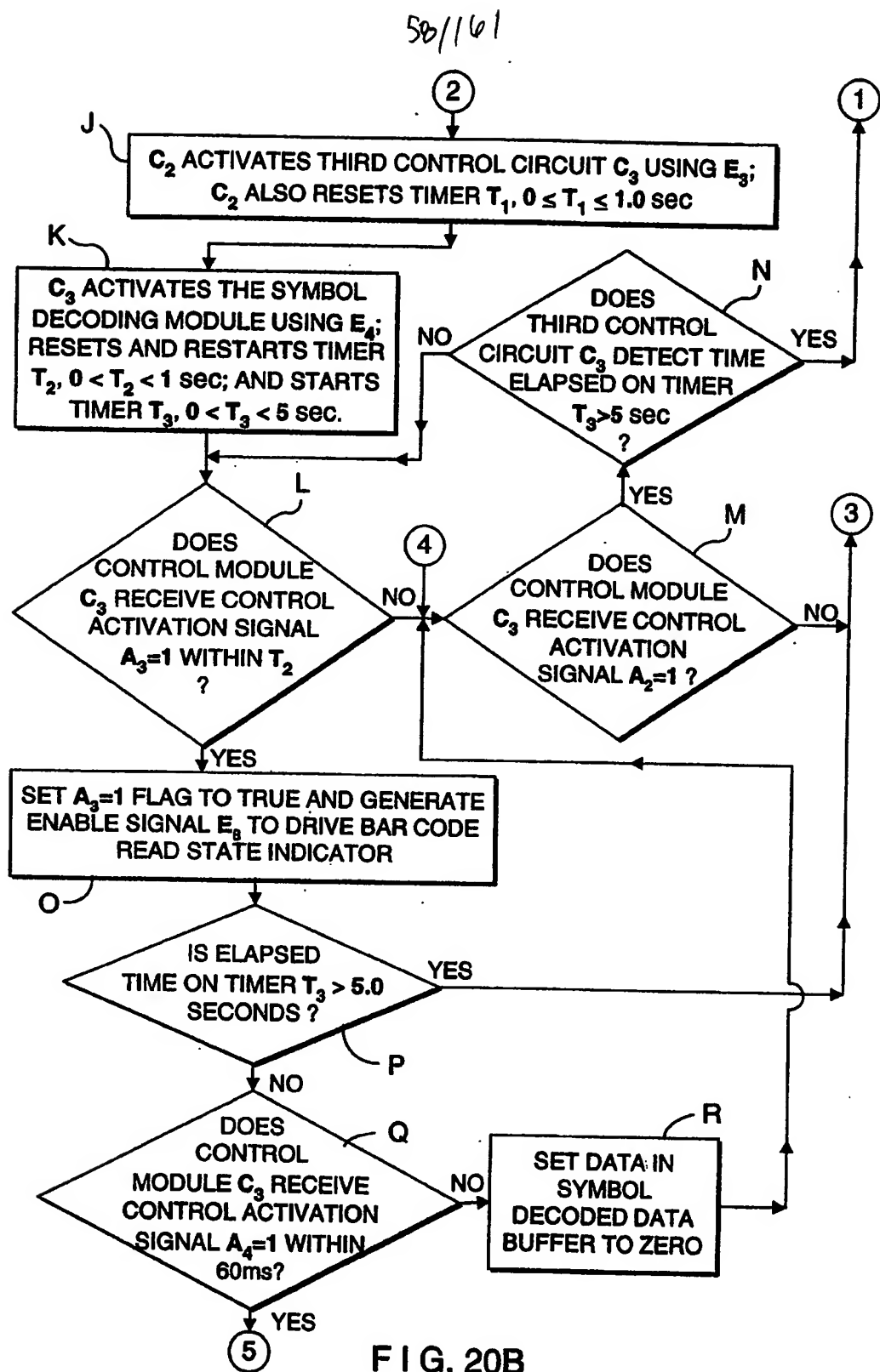


FIG. 20B

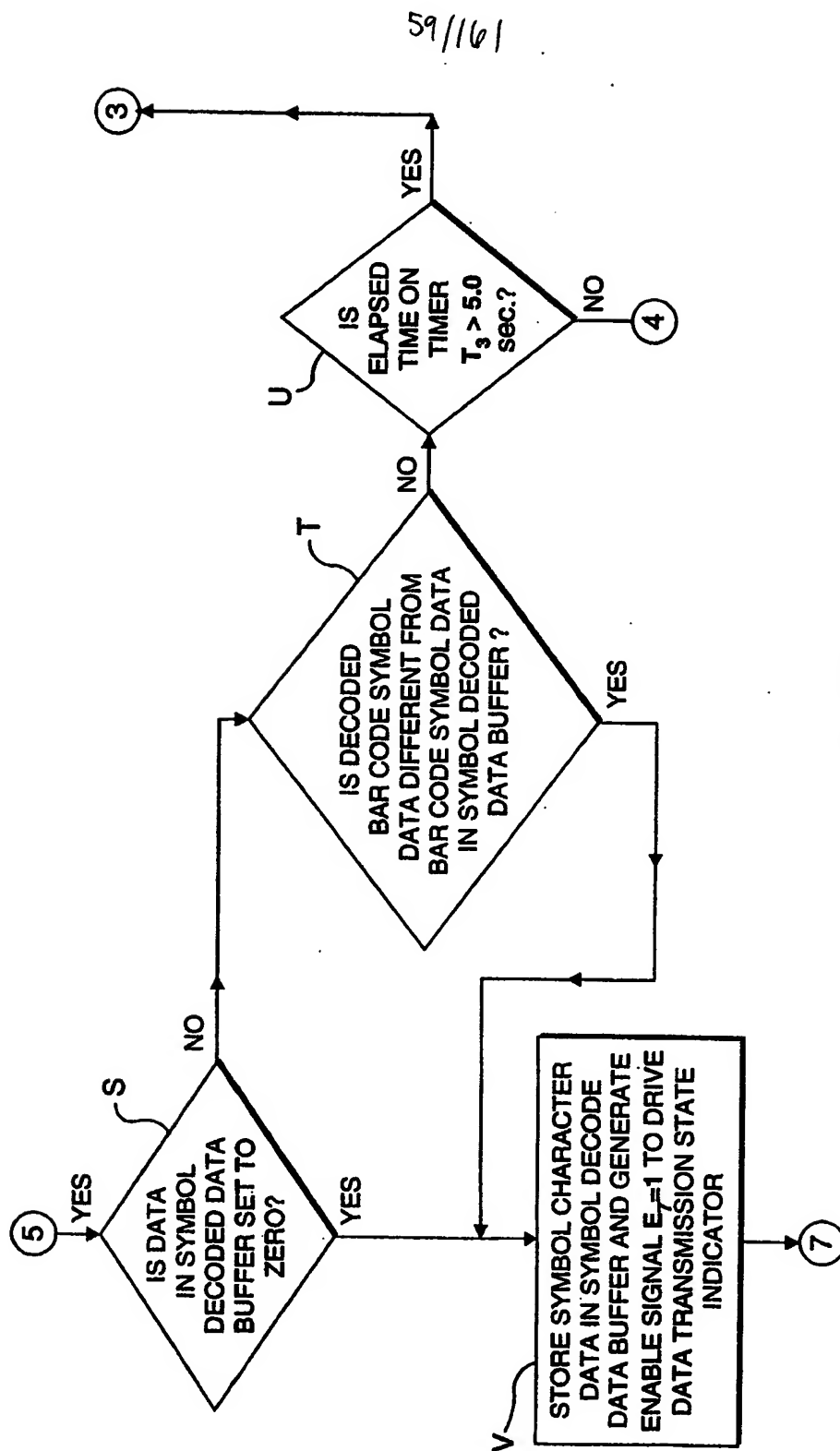


FIG. 20C

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7

THIRD CONTROL CIRCUIT C_3 CONTINUES ACTIVATION OF LASER DIODE, SCANNING MOTOR, PHOTORECEIVING CIRCUIT, A/D CONVERSION CIRCUIT; DEACTIVATES SYMBOL DECODING MODULE; AND COMMENCES ACTIVATION DATA PACKET SYNTHESIS MODULE

W

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE SETS PACKET NUMBER TO 1 AND INCREMENTS DATA PACKET GROUP NUMBER MODULE COUNTER

X

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE CONSTRUCTS DATA PACKET CONSISTING OF SYMBOL CHARACTER DATA, TRANSMITTER NUMBER, DATA PACKET GROUP NUMBER, CHECK CHARACTER AND FRAMING CHARACTERS

Y

C_3 ACTIVATES DATA PACKET TRANSMISSION CIRCUIT

Z

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE OUTPUTS PACKET TO DATA PACKET TRANSMISSION CIRCUIT

AA

C_3 DETERMINES IS PACKET NUMBER < 3 ?

BB

NO → 8

YES

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE INCREMENTS DATA PACKET GROUP NUMBER

CC

C_3 ALLOWS T_5 TO EXPIRE IN ORDER TO DELAY TRANSMISSION BASED ON LAST TWO DIGITS OF TRANSMITTER NUMBER

DD

FIG. 20D

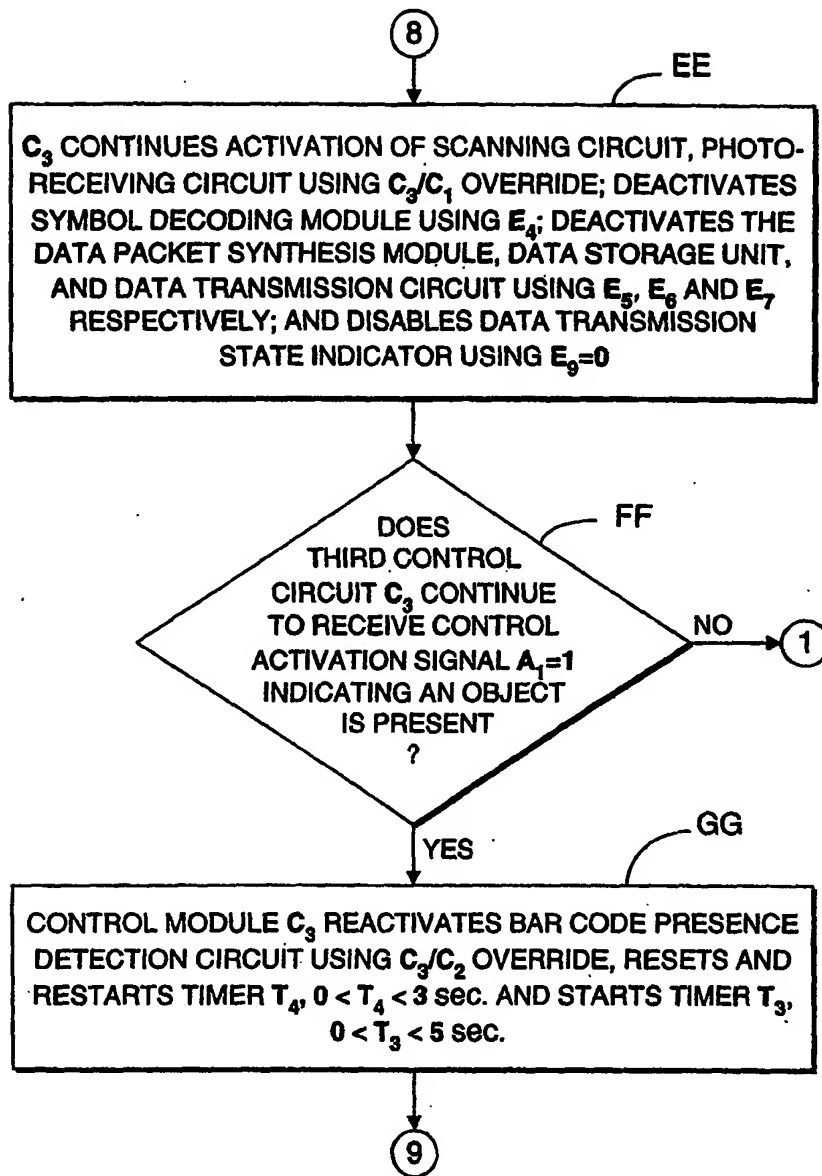


FIG. 20E

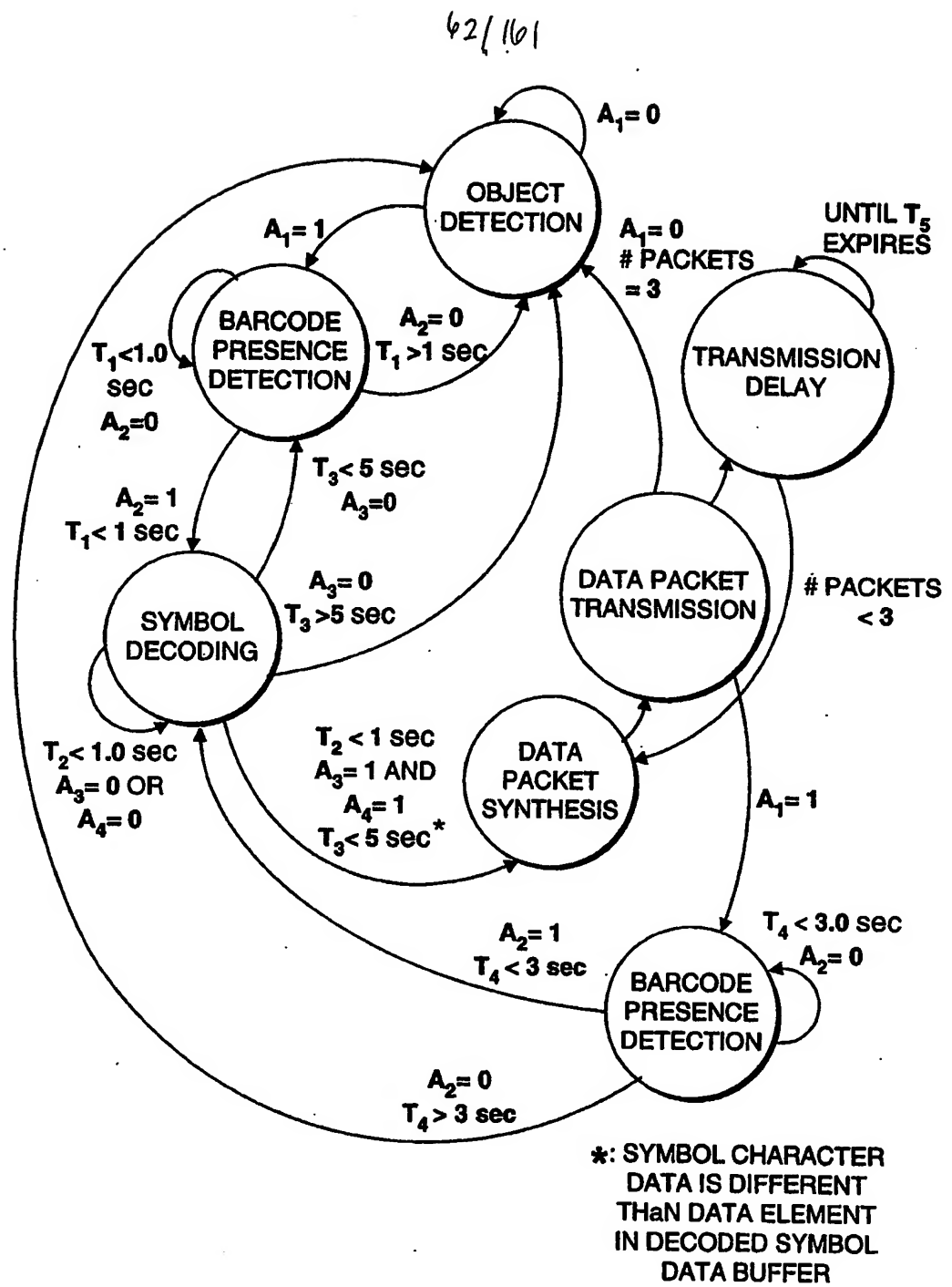


FIG. 21

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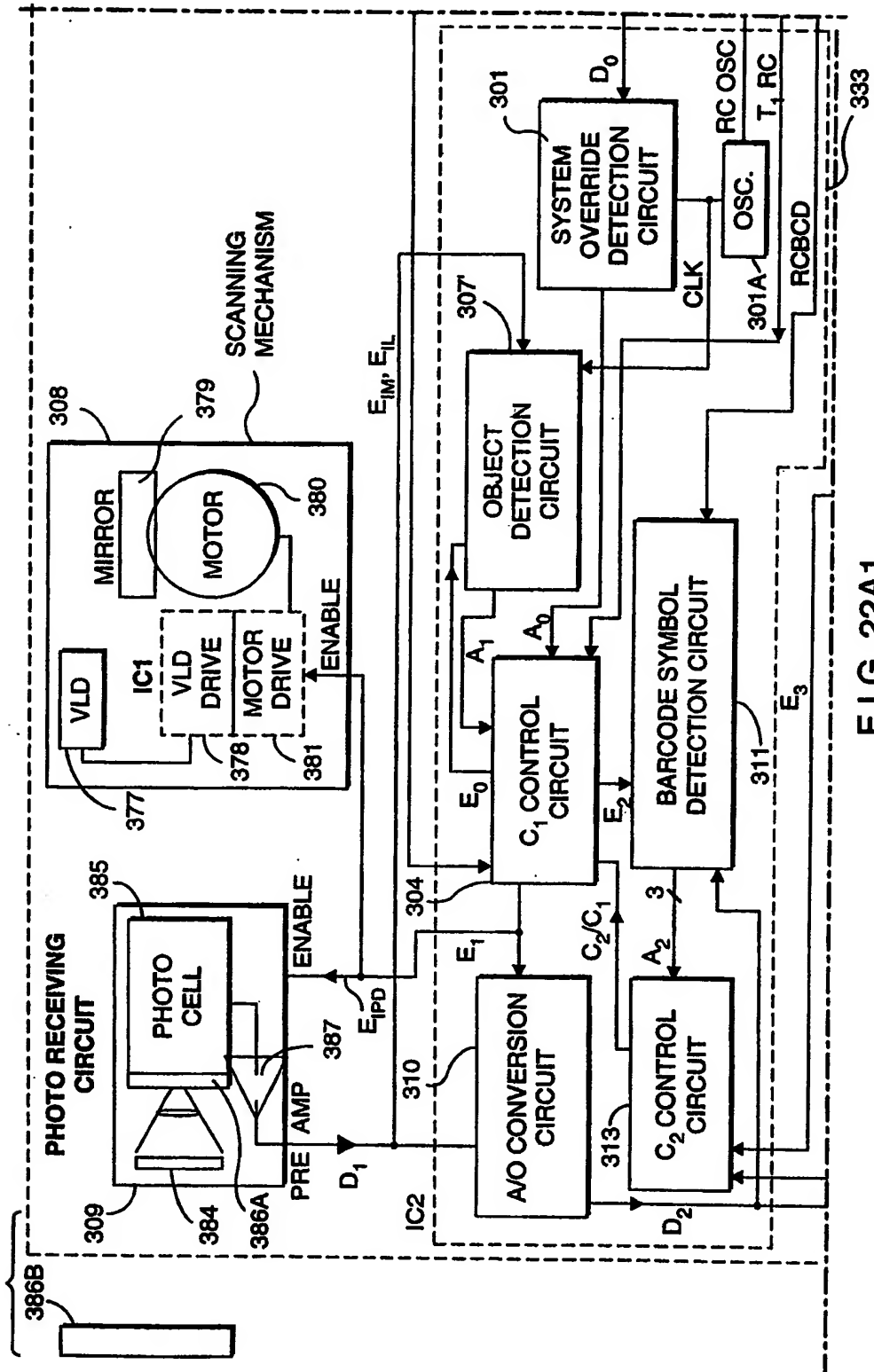


FIG. 22A1

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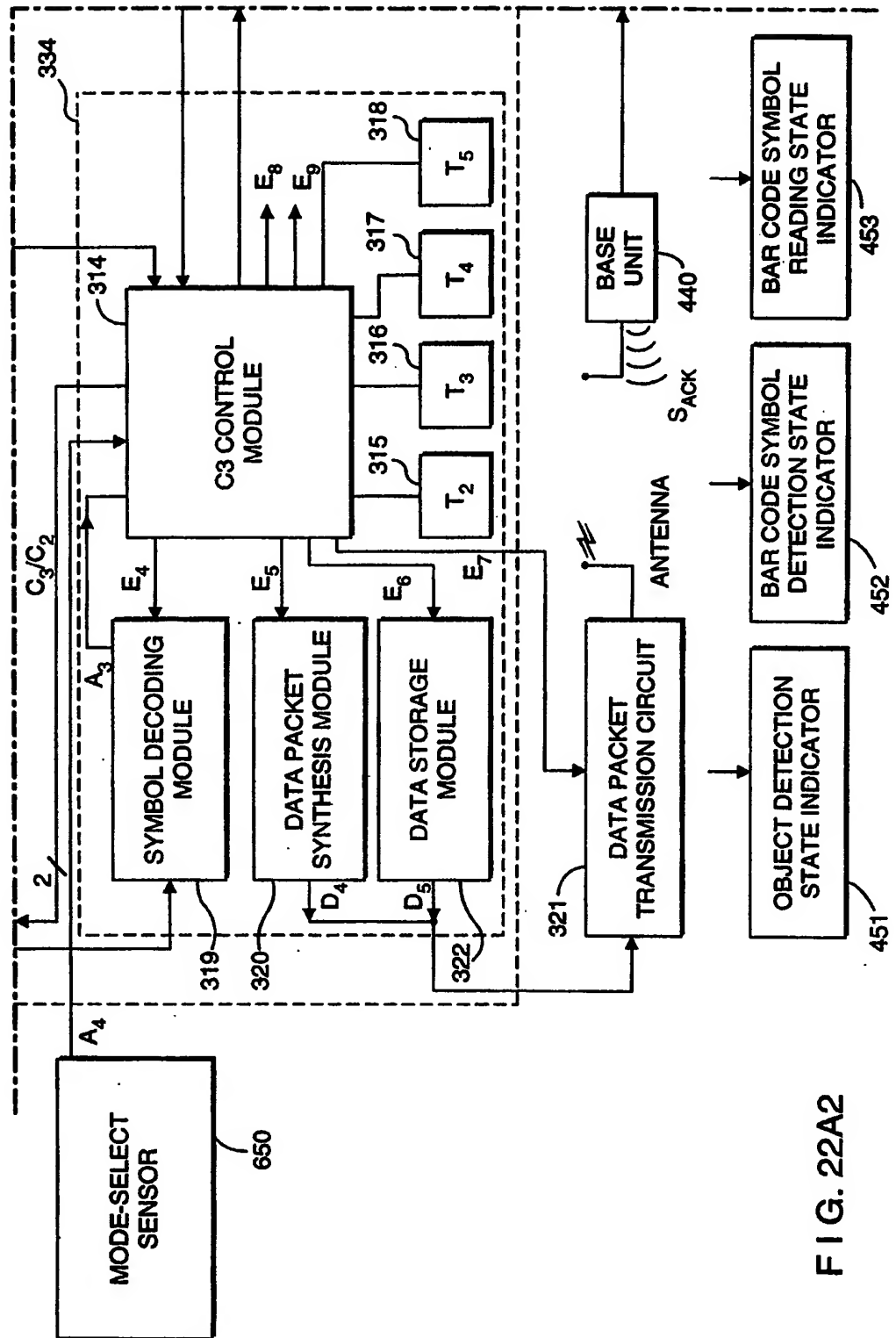


FIG. 22A2

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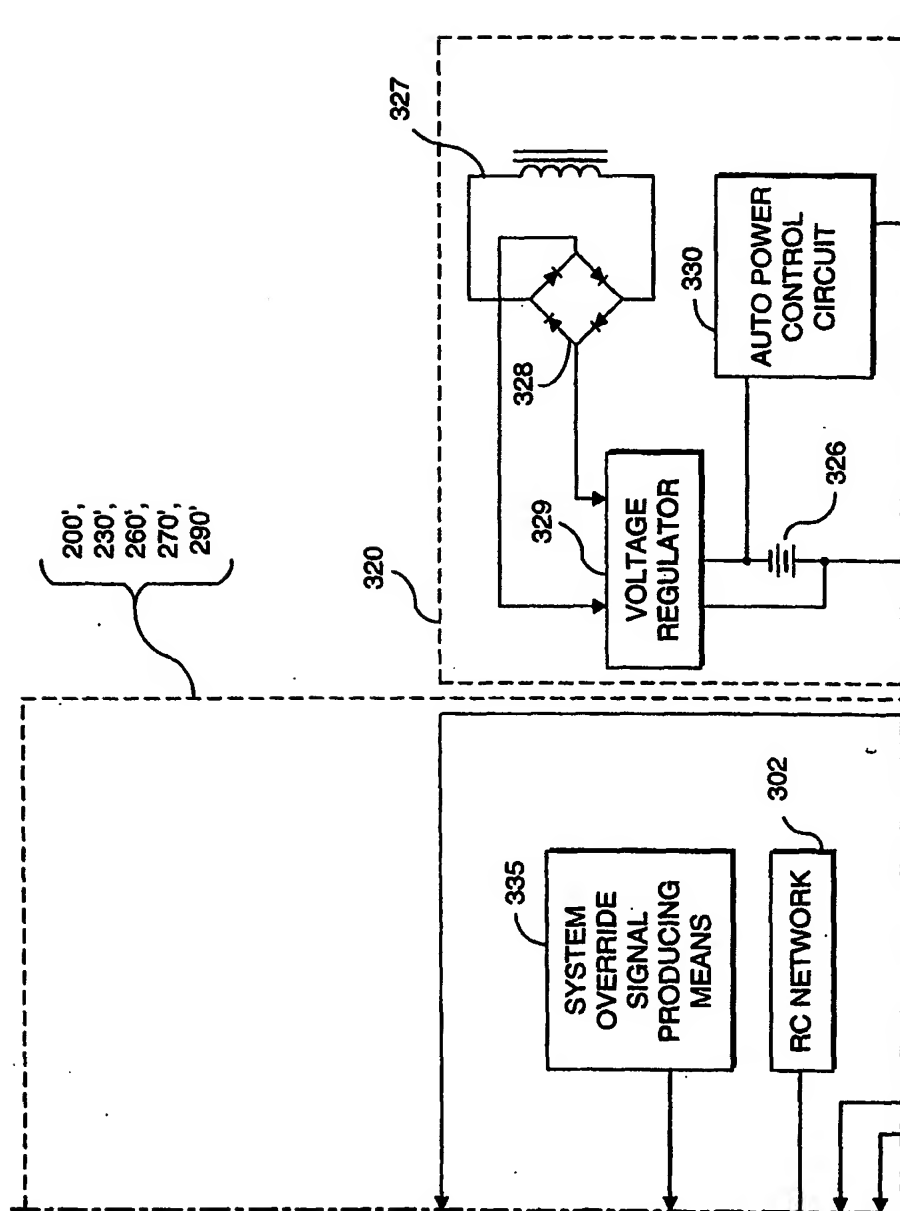


FIG. 22A3

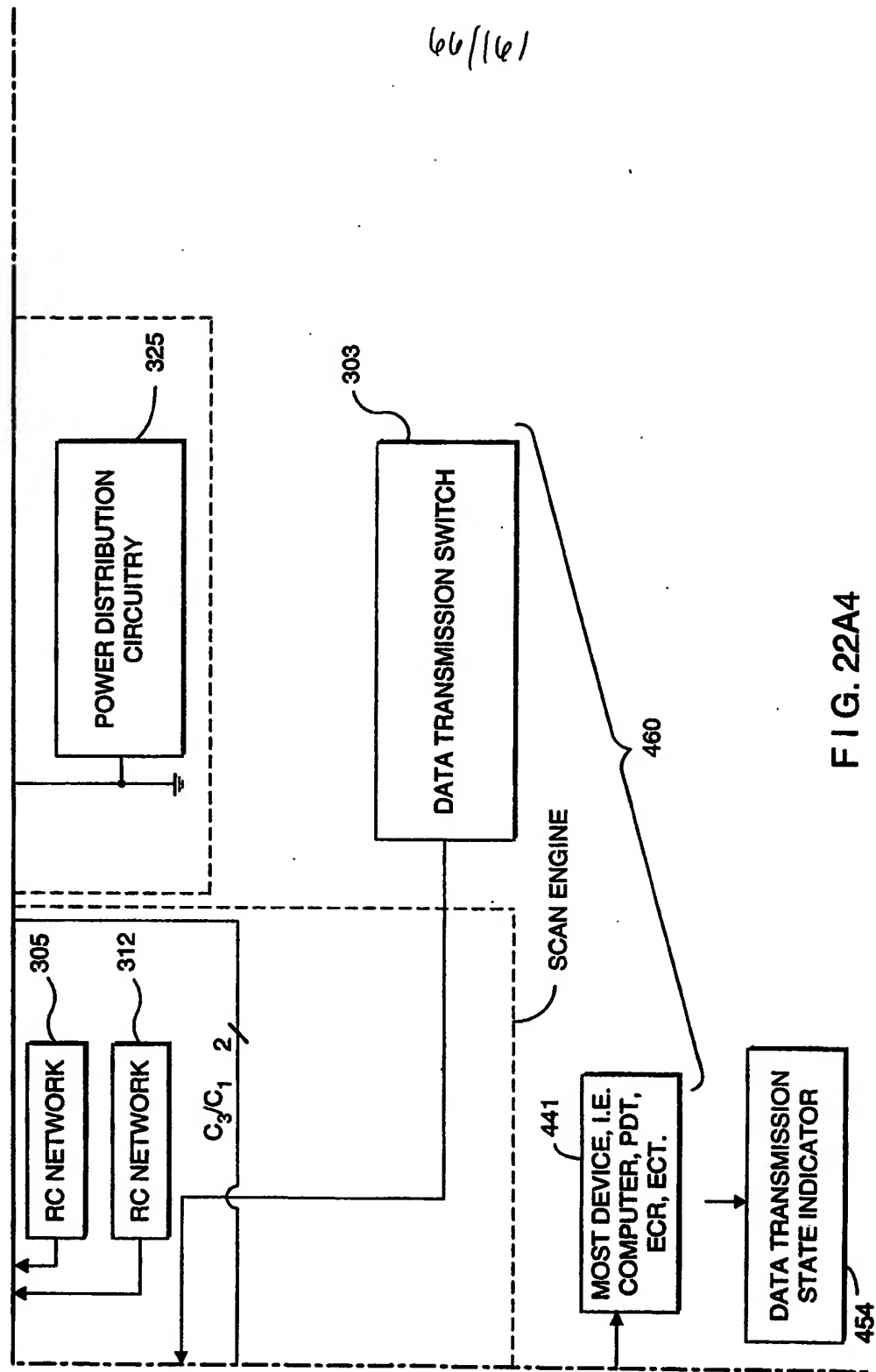


FIG. 22A4

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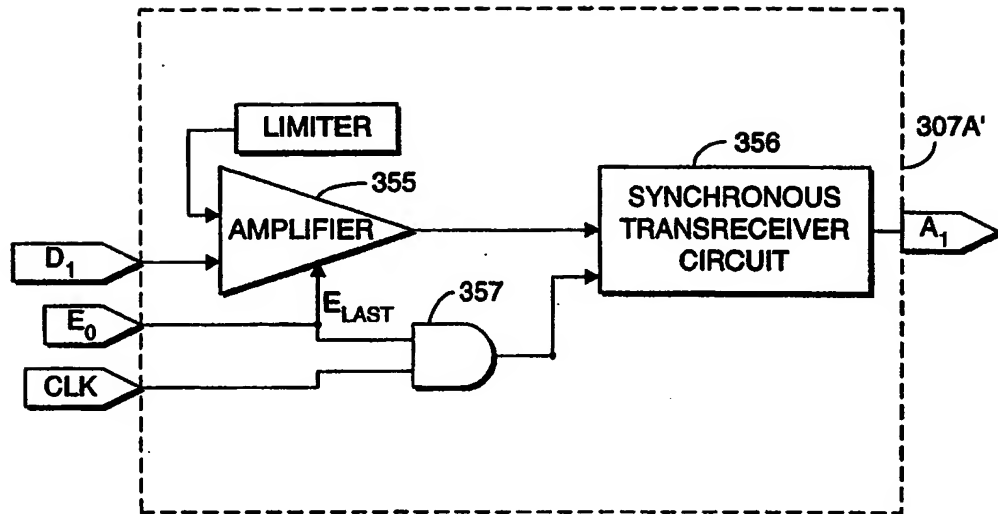


FIG. 22B

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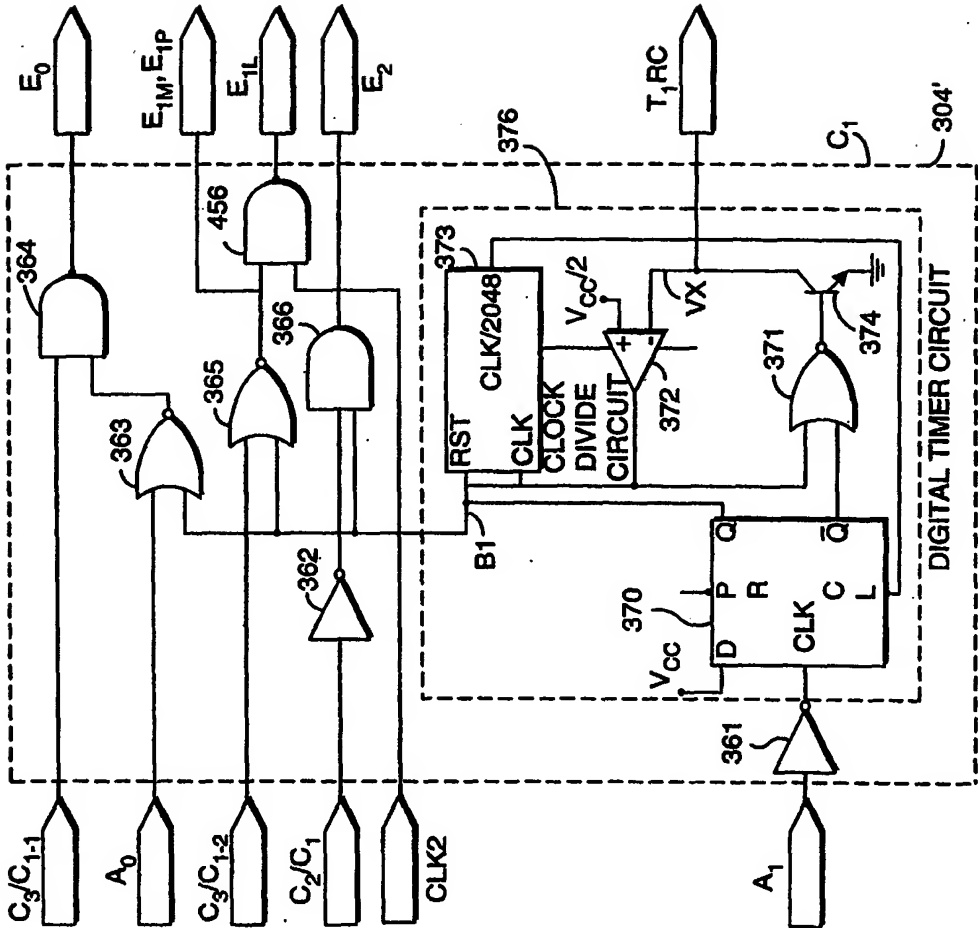


FIG. 22C

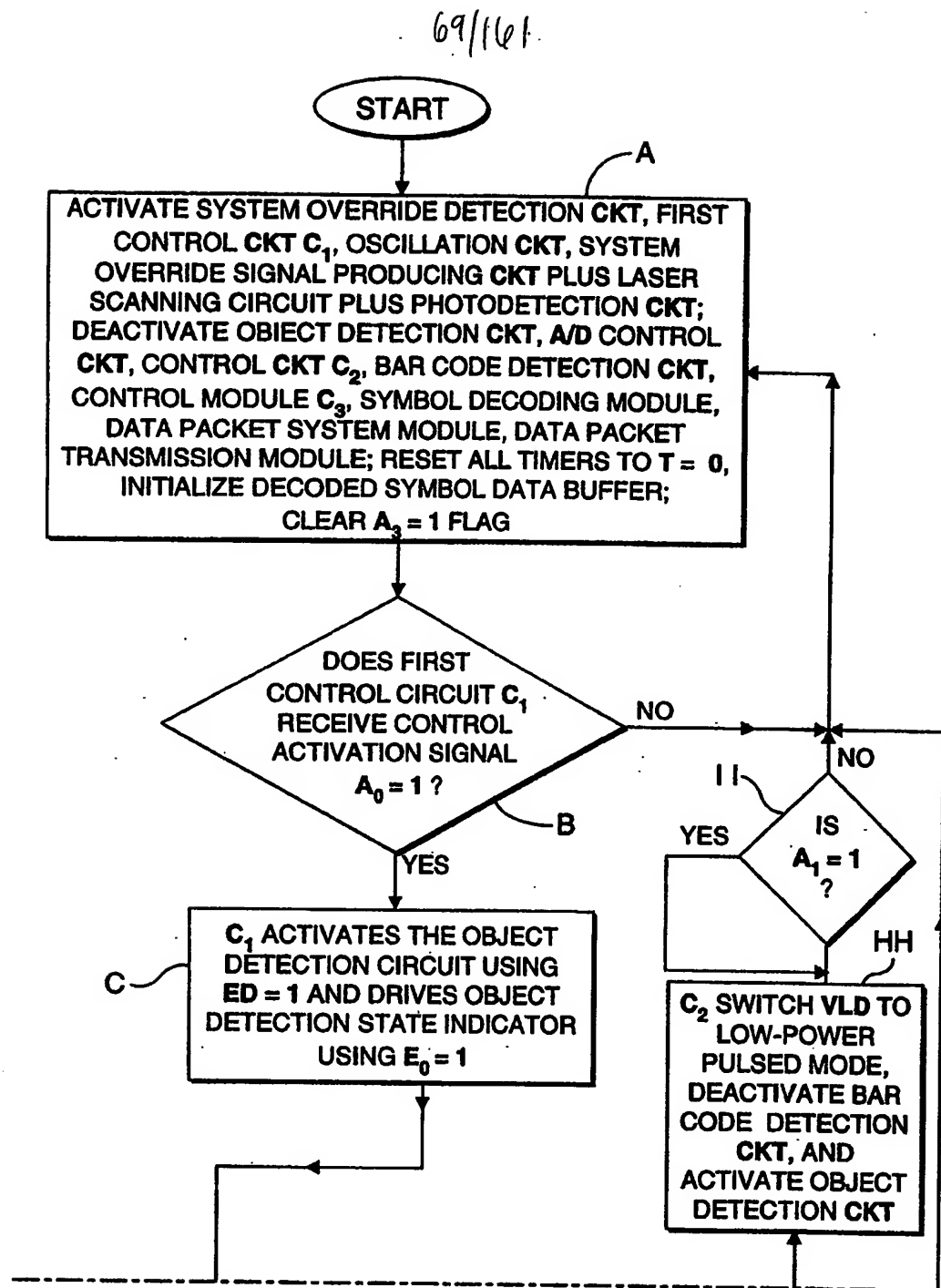


FIG. 23A1

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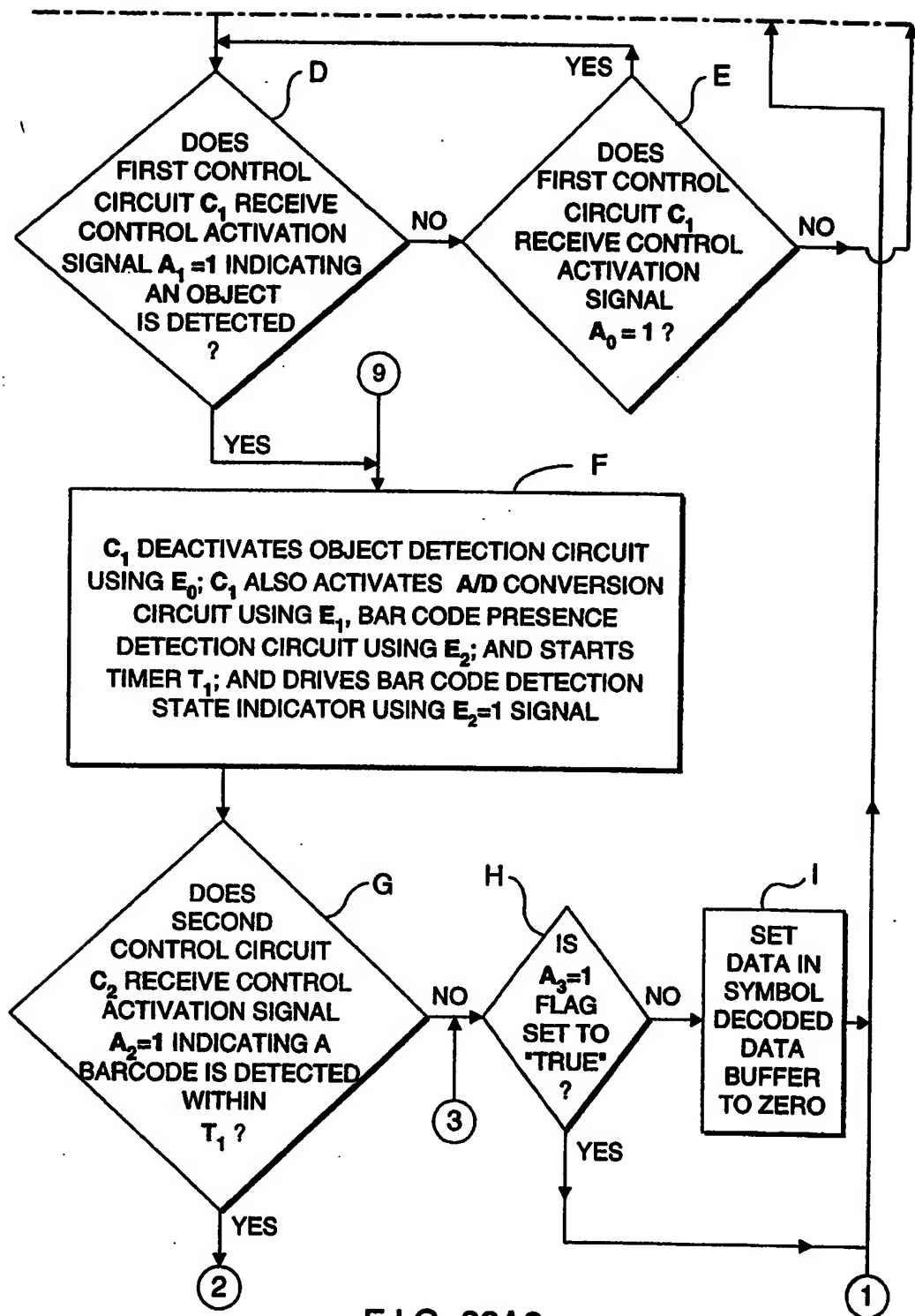
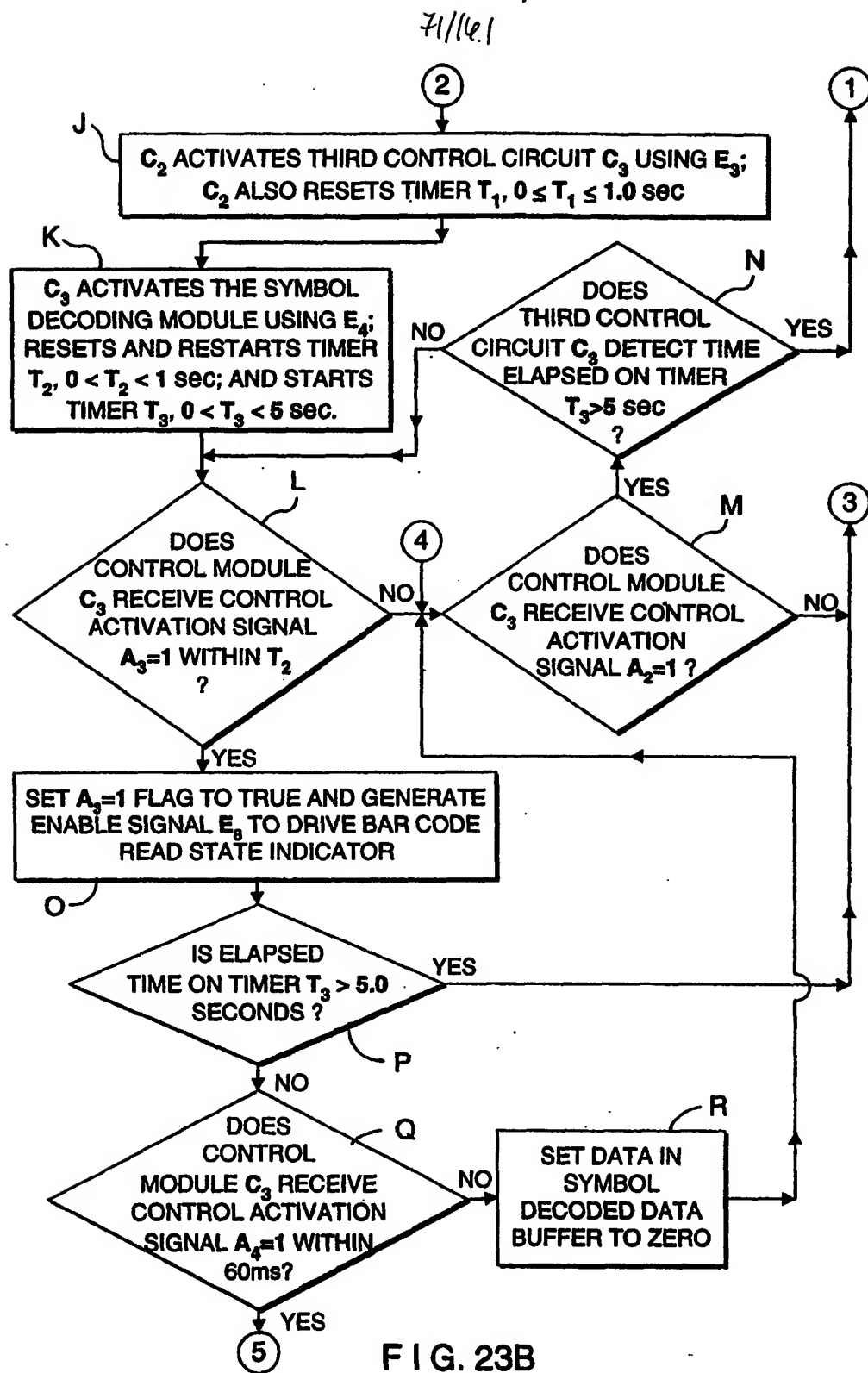


FIG. 23A2



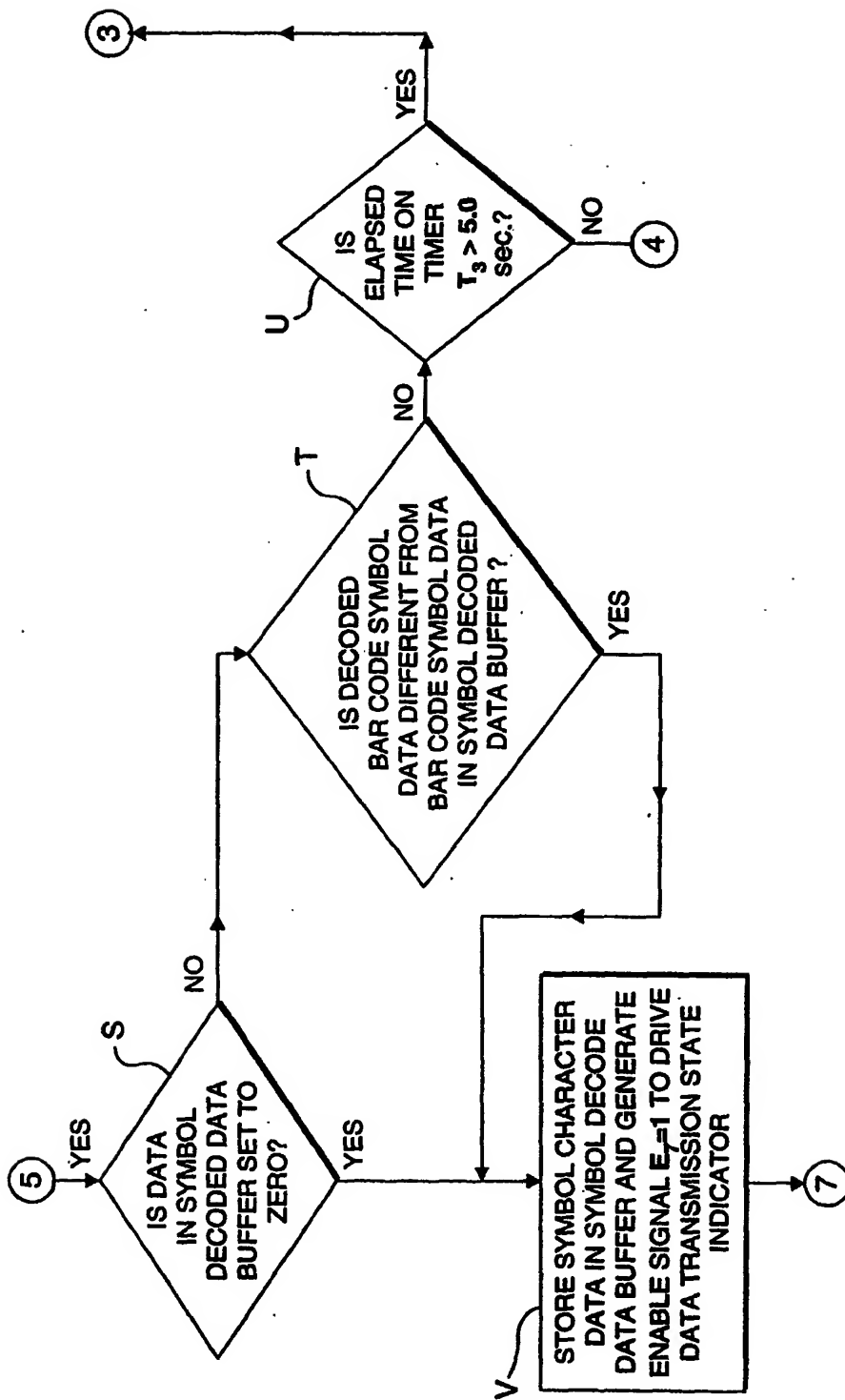


FIG. 23C

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7

THIRD CONTROL CIRCUIT C_3 CONTINUES ACTIVATION OF LASER DIODE, SCANNING MOTOR, PHOTORECEIVING CIRCUIT, A/D CONVERSION CIRCUIT; DEACTIVATES SYMBOL DECODING MODULE; AND COMMENCES ACTIVATION DATA PACKET SYNTHESIS MODULE W

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE SETS PACKET NUMBER TO 1 AND INCREMENTS DATA PACKET GROUP NUMBER MODULE COUNTER X

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE CONSTRUCTS DATA PACKET CONSISTING OF SYMBOL CHARACTER DATA, TRANSMITTER NUMBER, DATA PACKET GROUP NUMBER, CHECK CHARACTER AND FRAMING CHARACTERS Y

C_3 ACTIVATES DATA PACKET TRANSMISSION CIRCUIT Z

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE OUTPUTS PACKET TO DATA PACKET TRANSMISSION CIRCUIT AA

C_3 DETERMINES IS PACKET NUMBER < 3 ? BB

NO → 8

YES

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE INCREMENTS DATA PACKET GROUP NUMBER CC

C_3 ALLOWS T_5 TO EXPIRE IN ORDER TO DELAY TRANSMISSION BASED ON LAST TWO DIGITS OF TRANSMITTER NUMBER DD

FIG. 23D

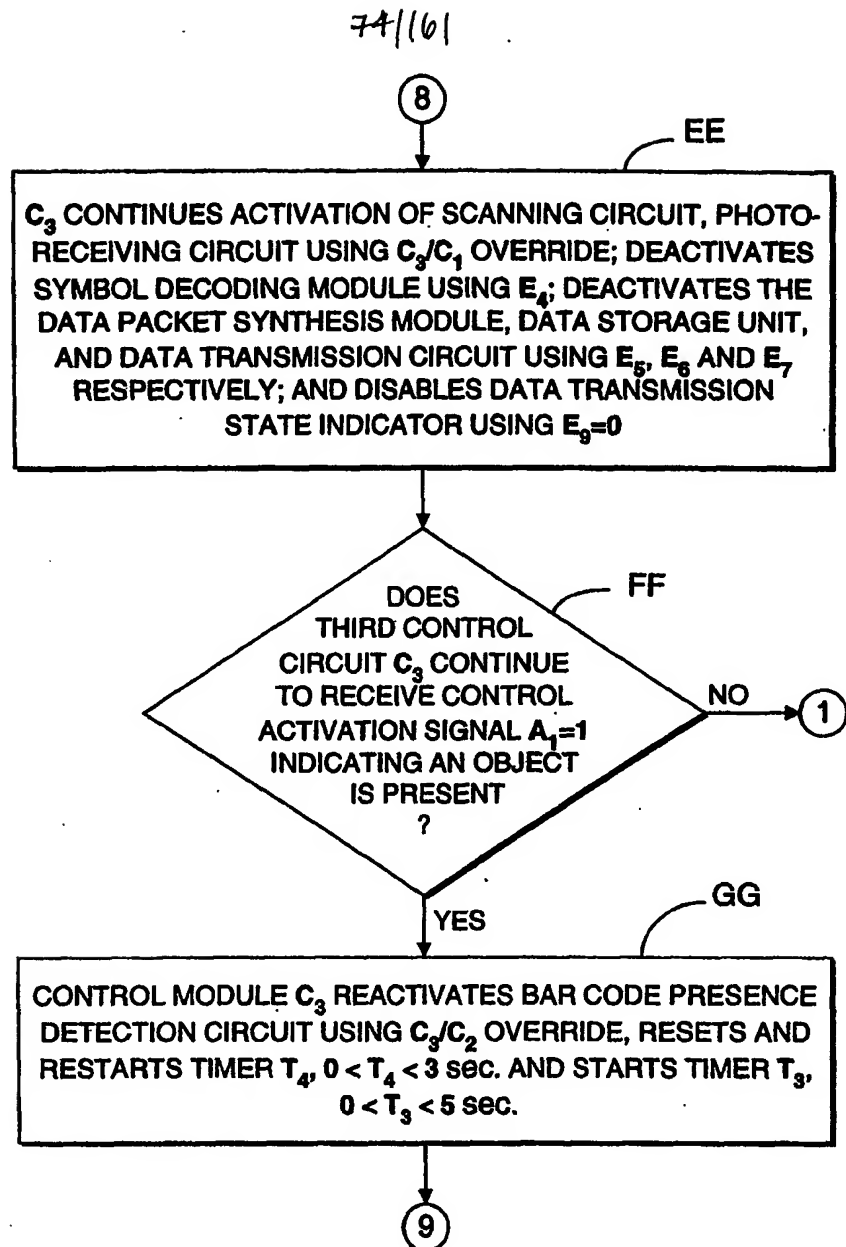


FIG. 23E

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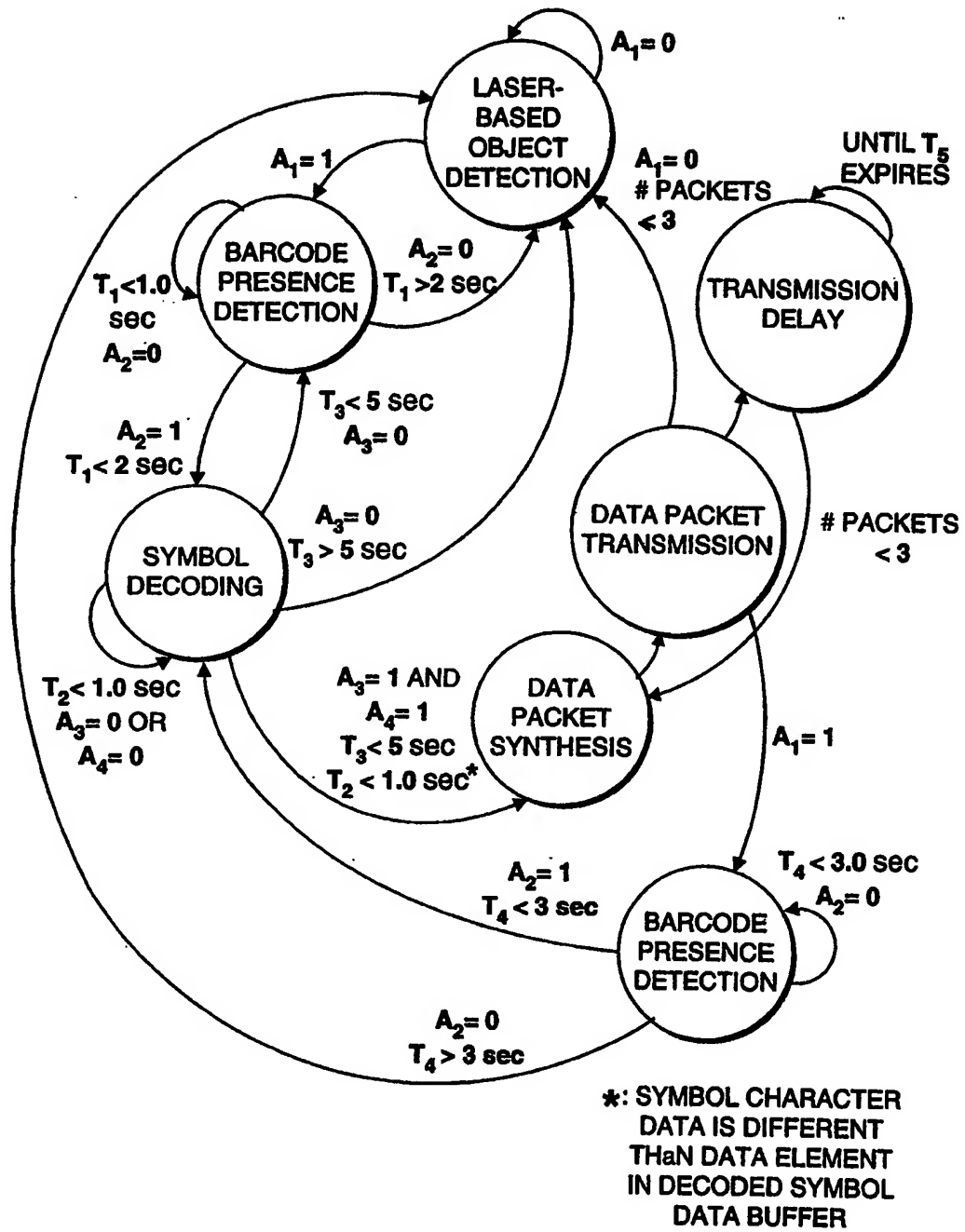


FIG. 24

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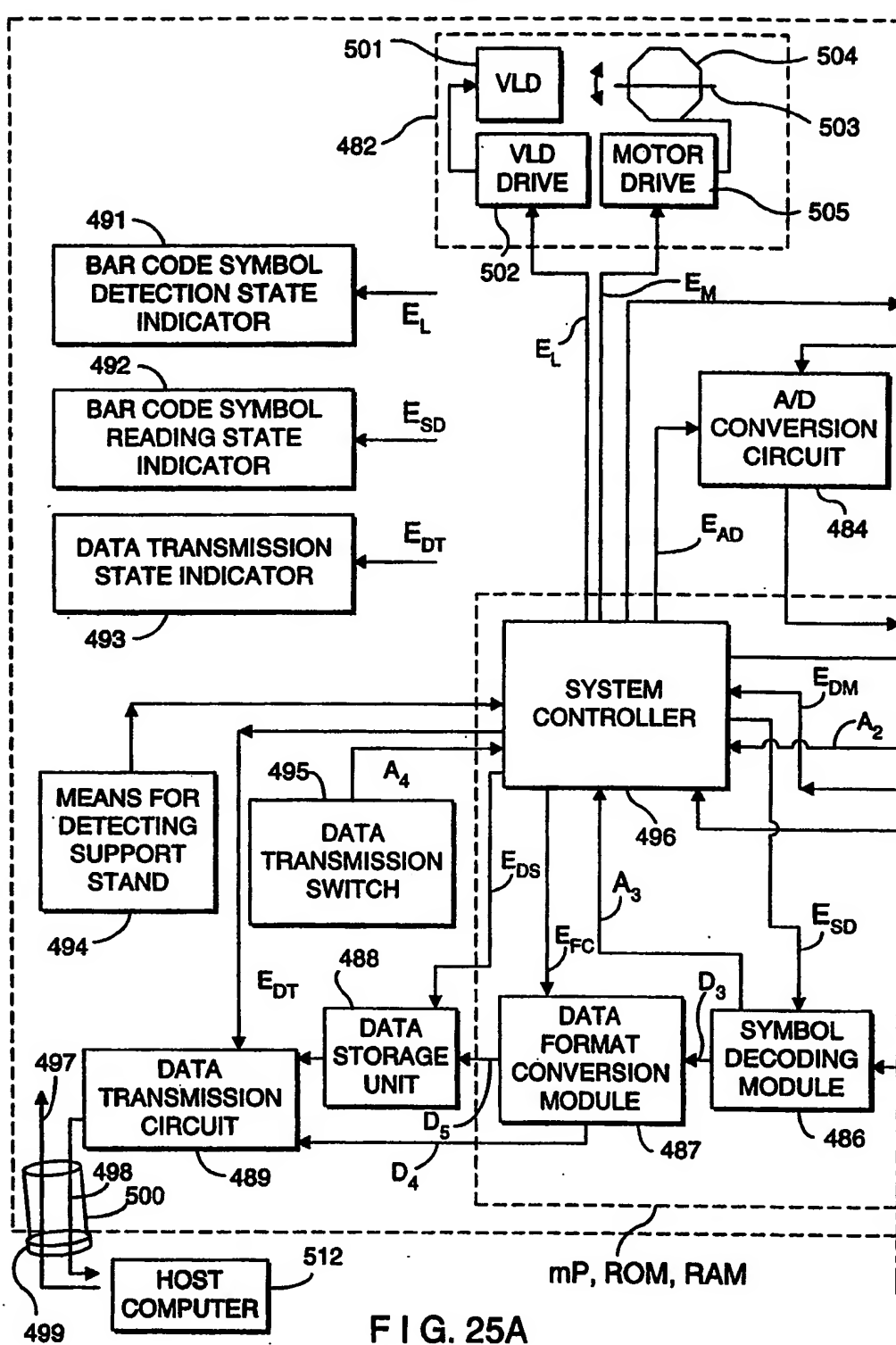


FIG. 25A

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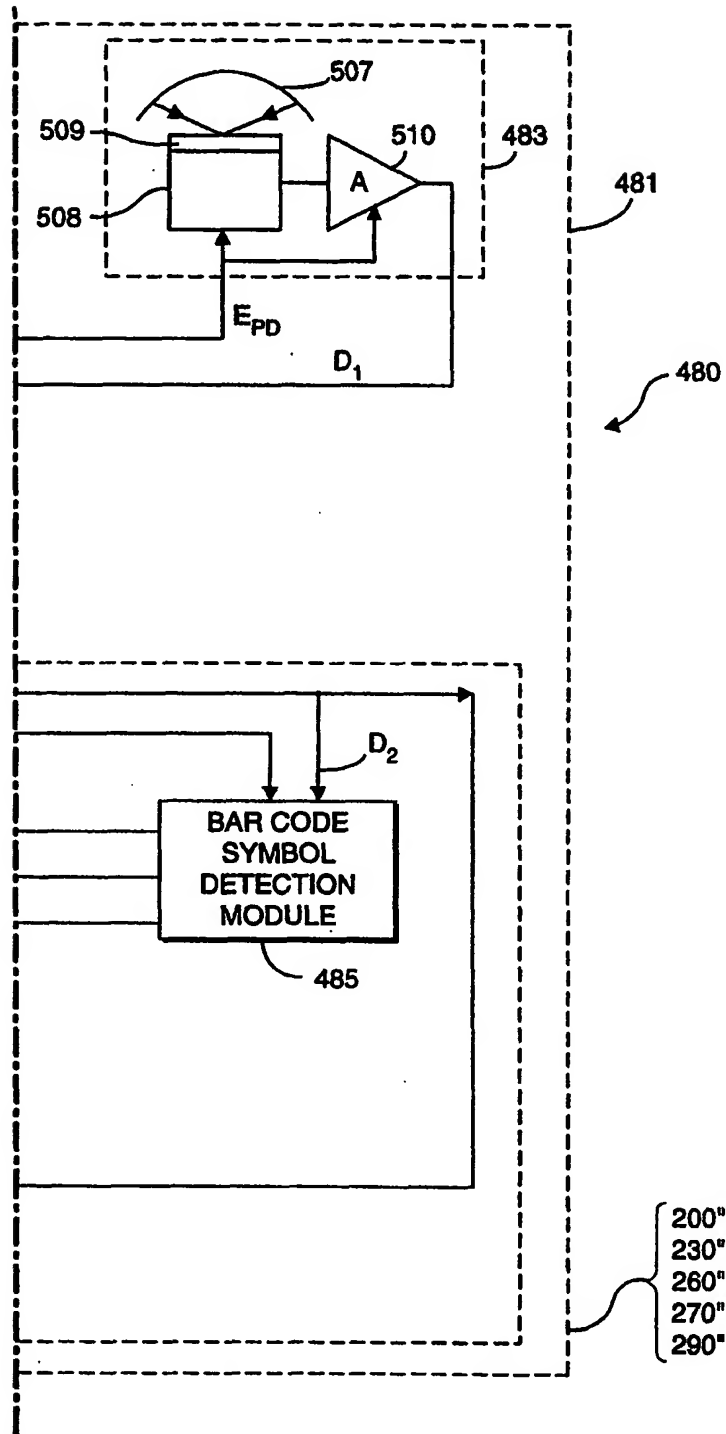
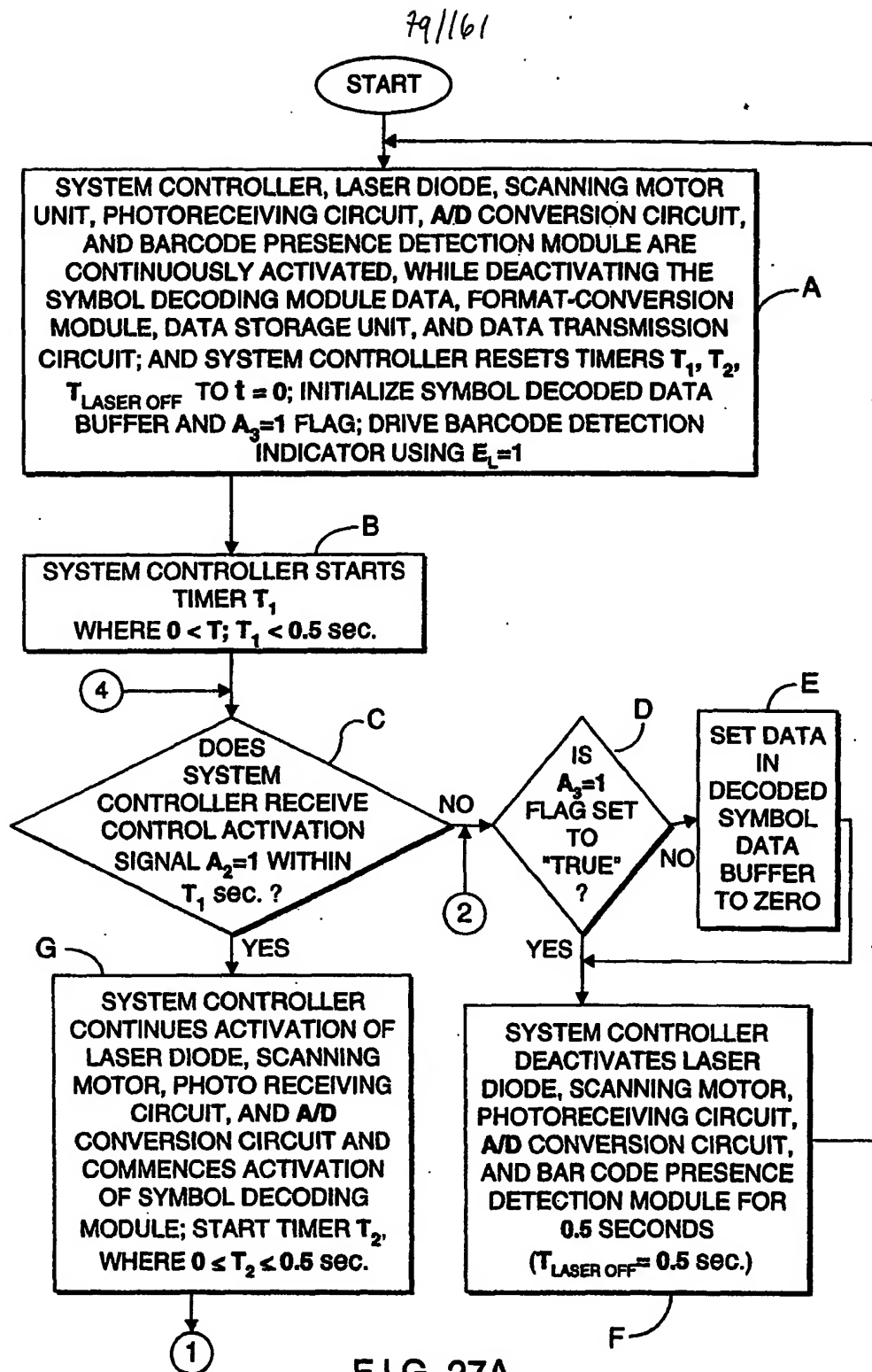


FIG. 25B

$T_1 = 1/2 \text{ sec.}, T_{\text{LASER OFF}} = 1/2 \text{ sec.}$



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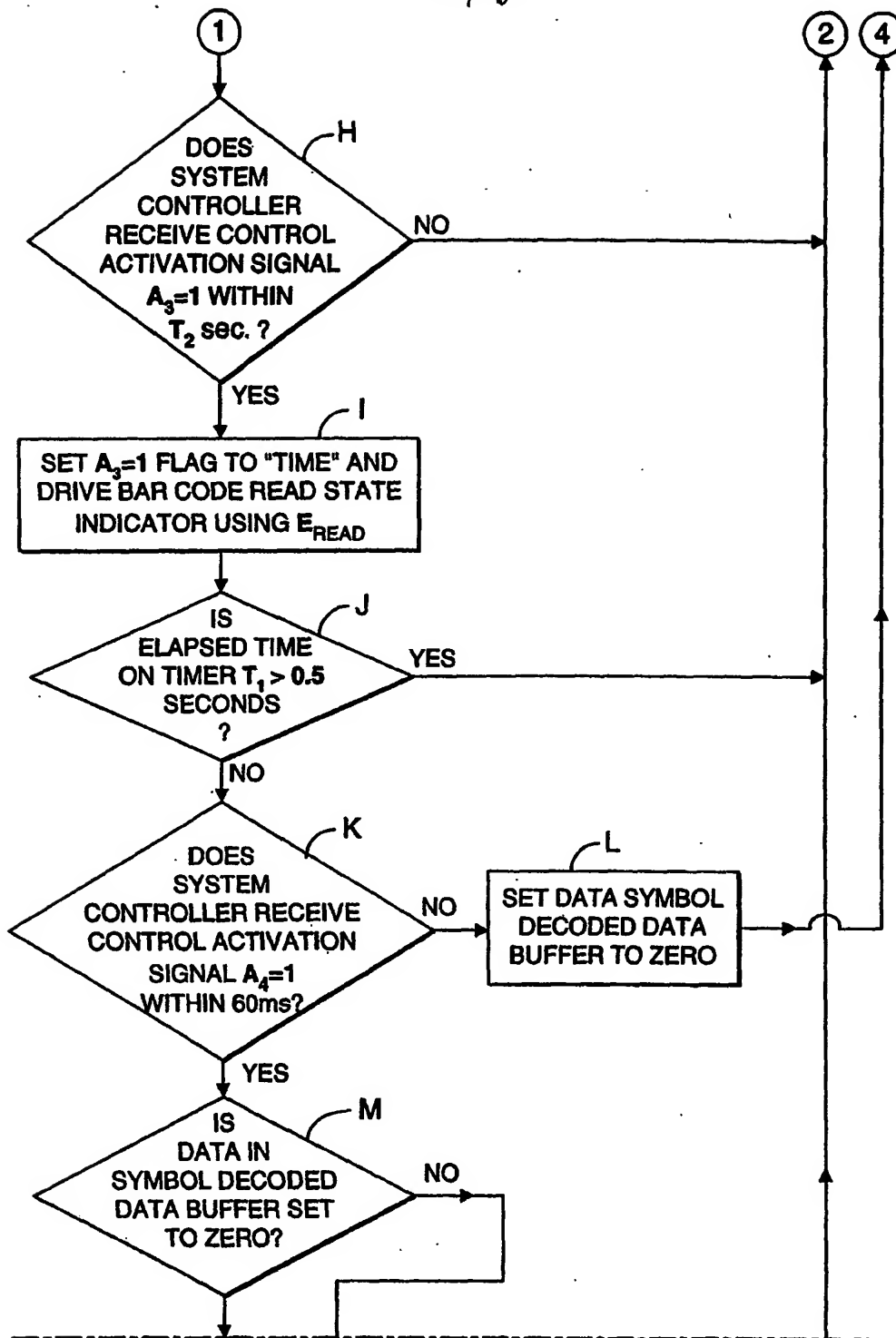


FIG. 27B1

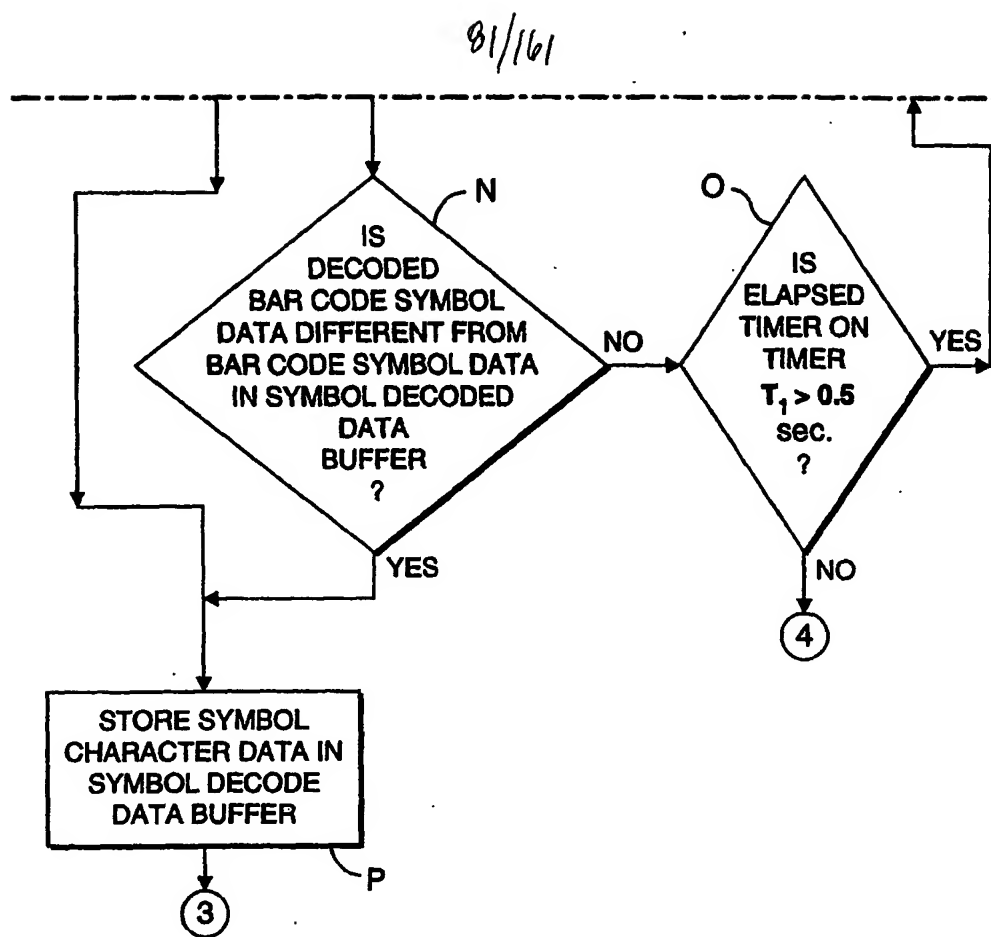


FIG. 27B2

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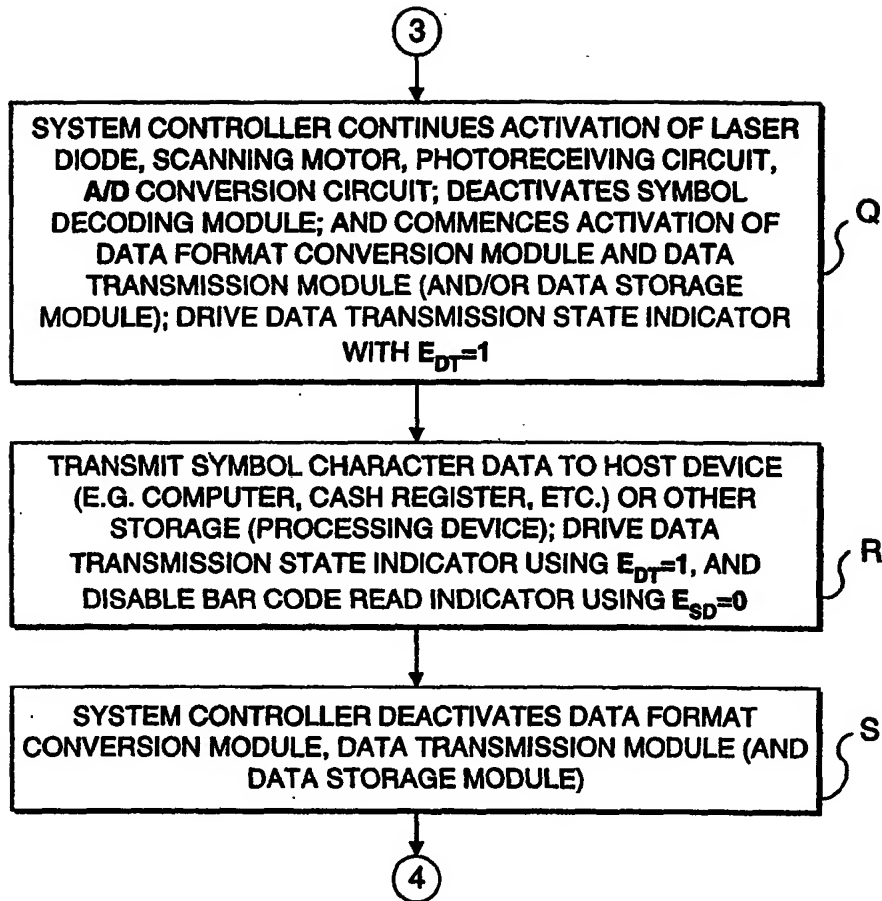
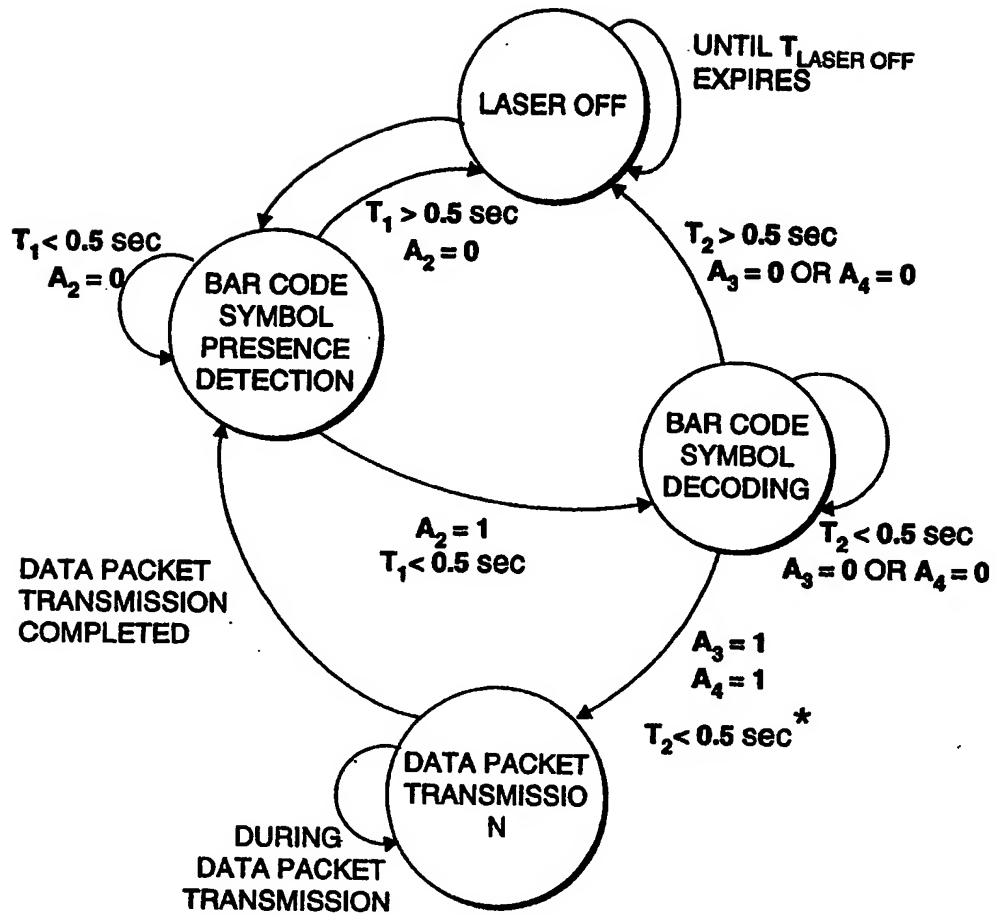


FIG. 27C

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*: SYMBOL CHARACTER DATA IS DIFFERENT THAN DATA ELEMENT IN DECODED SYMBOL DATA BUFFER

FIG. 28

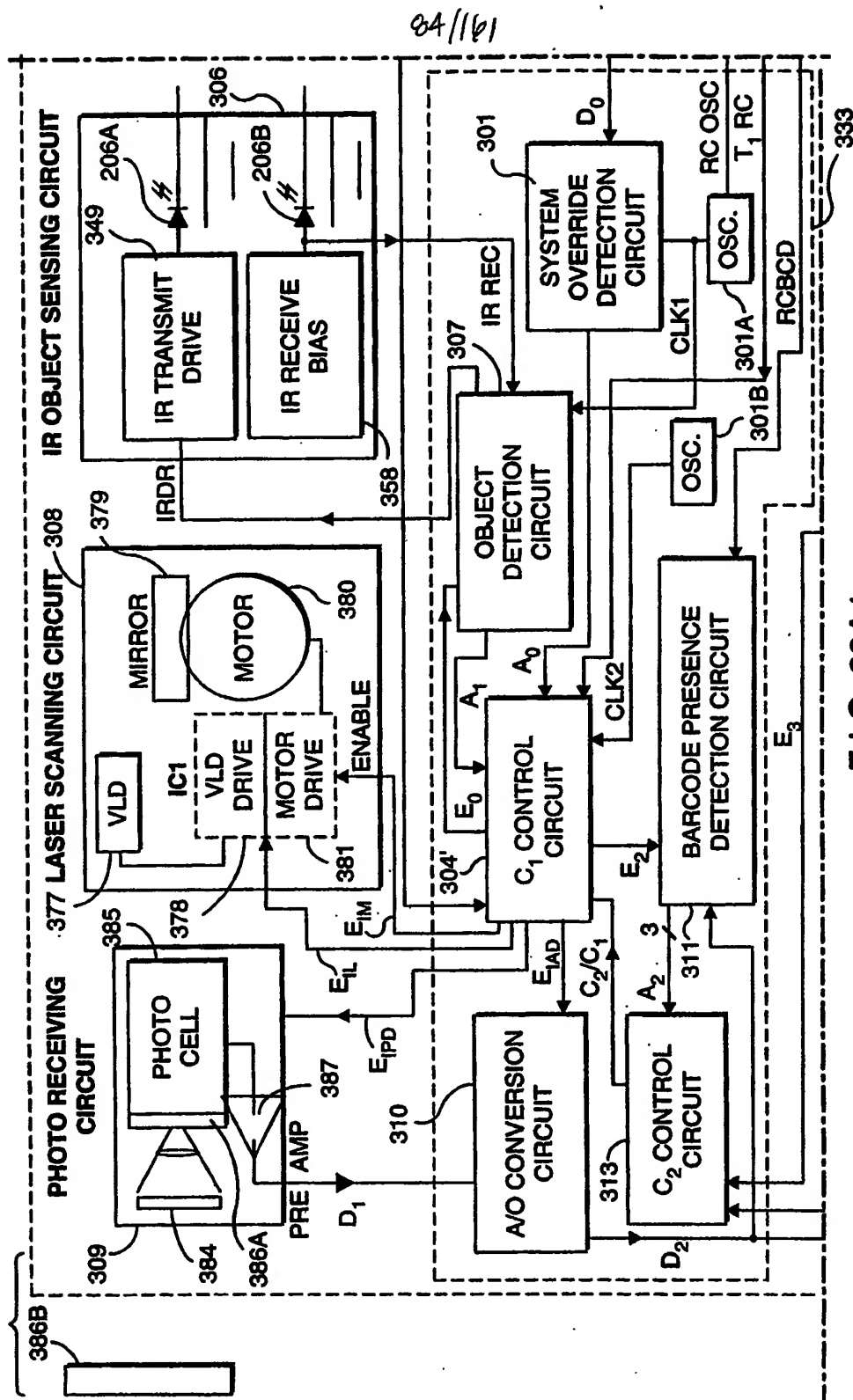


FIG. 29A1

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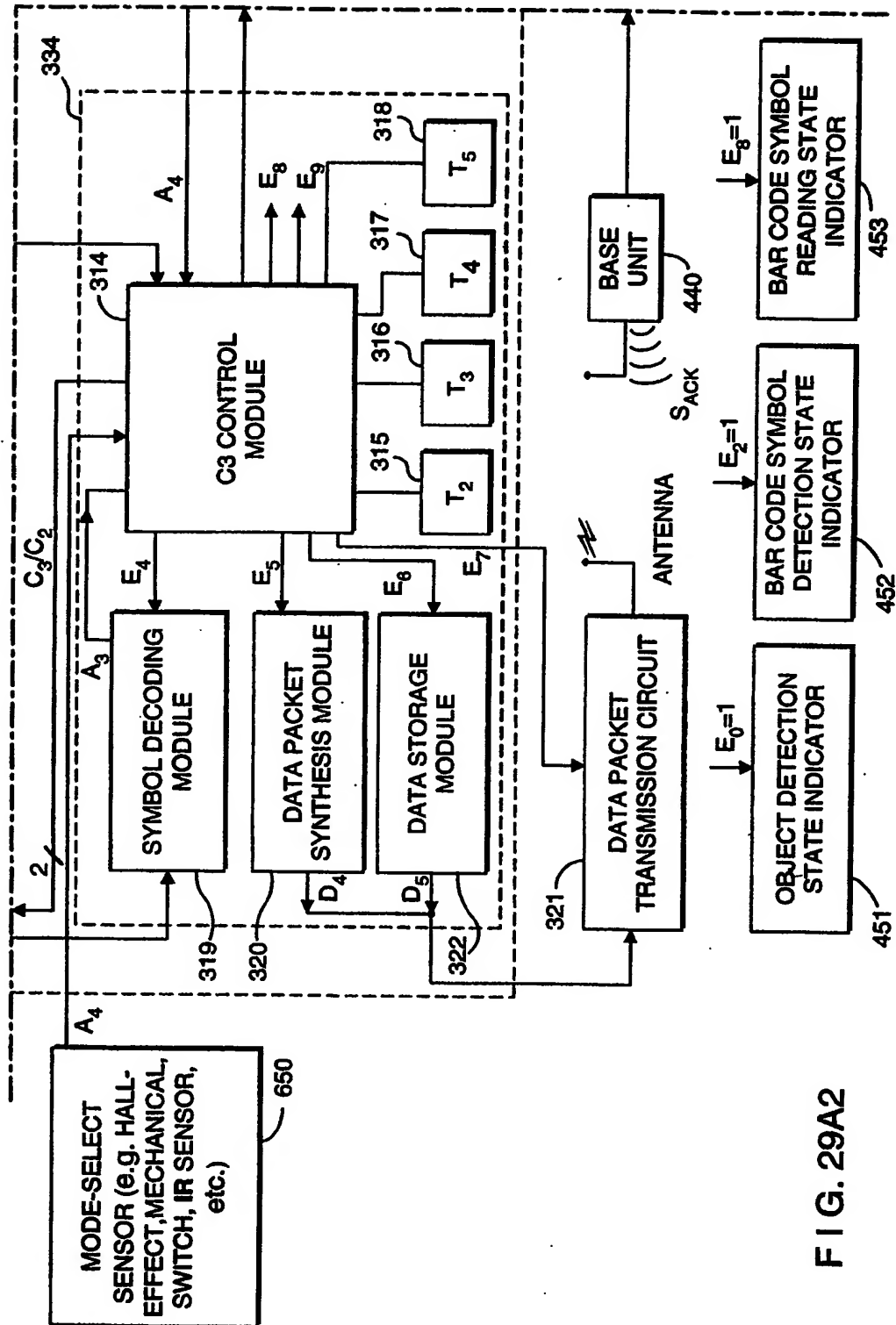


FIG. 29A2

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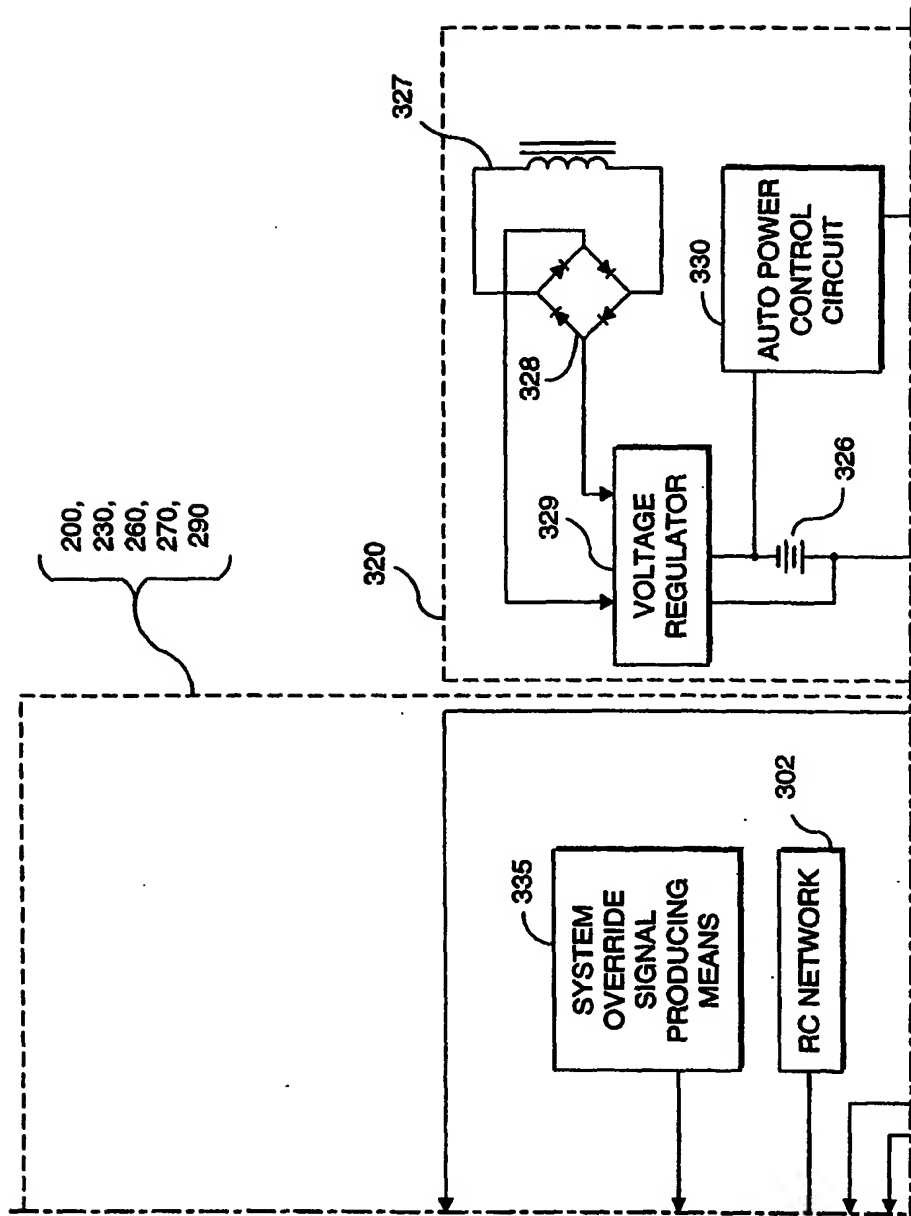


FIG. 29A3

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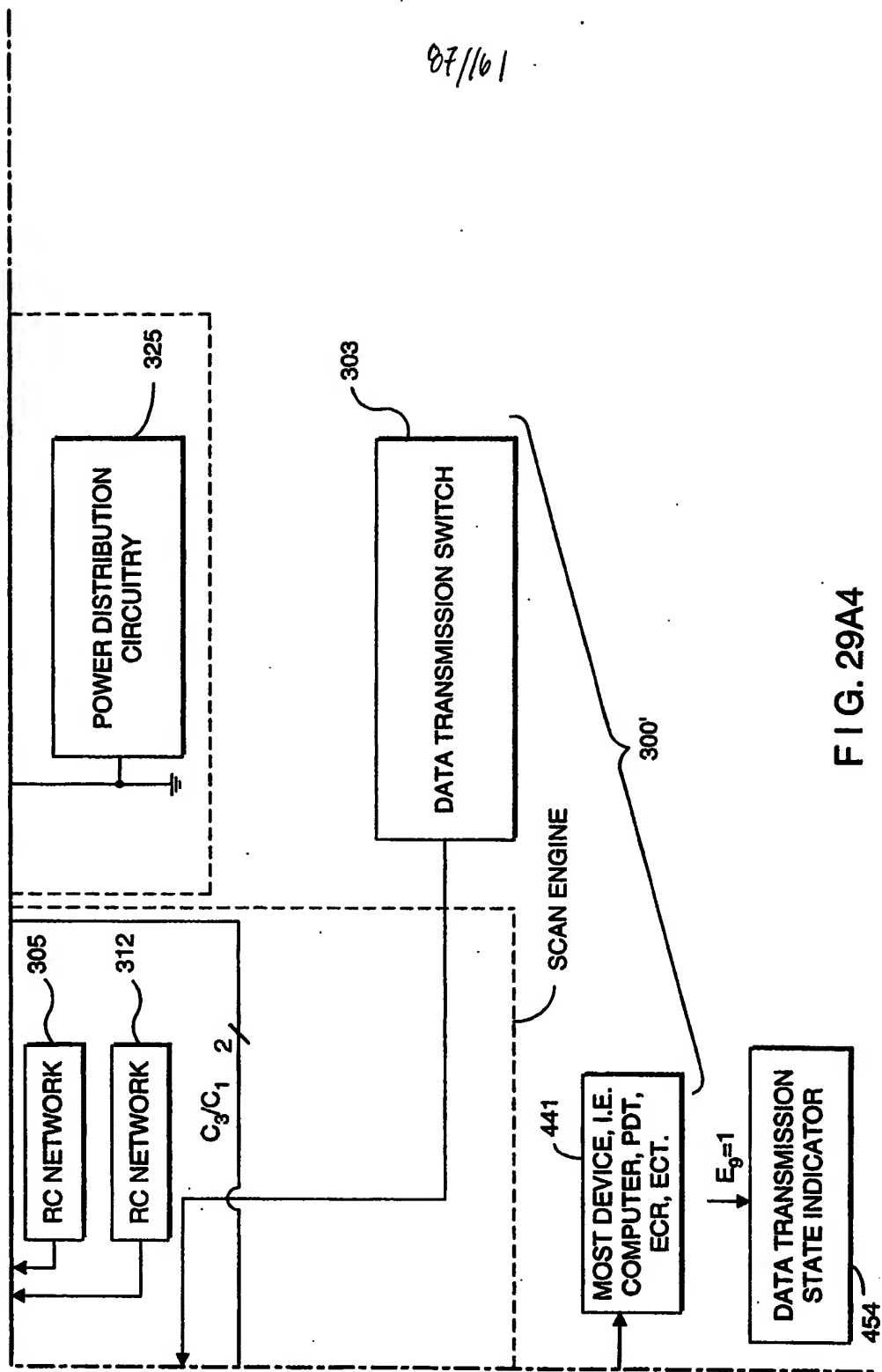


FIG. 29A4

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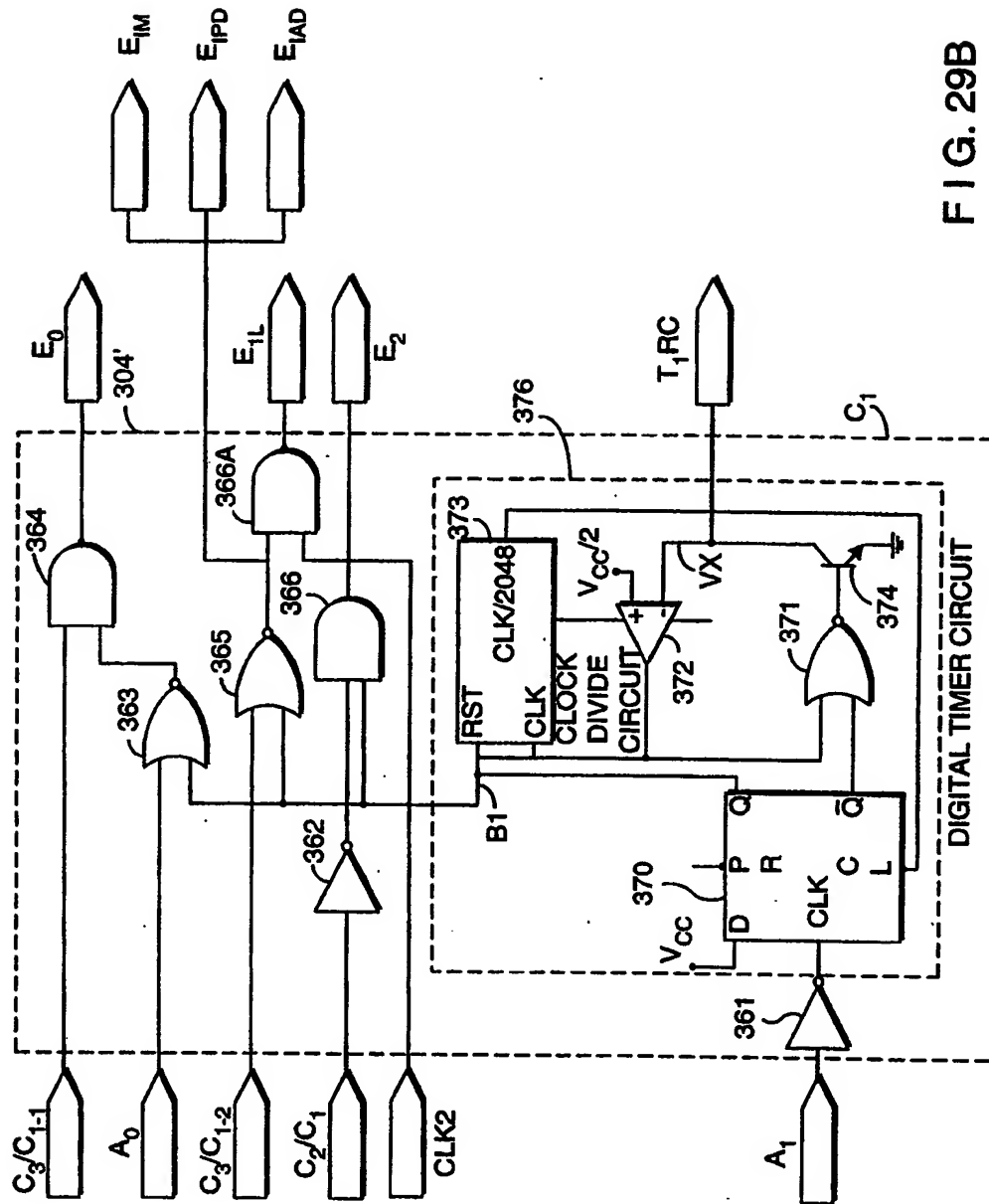


FIG. 29B

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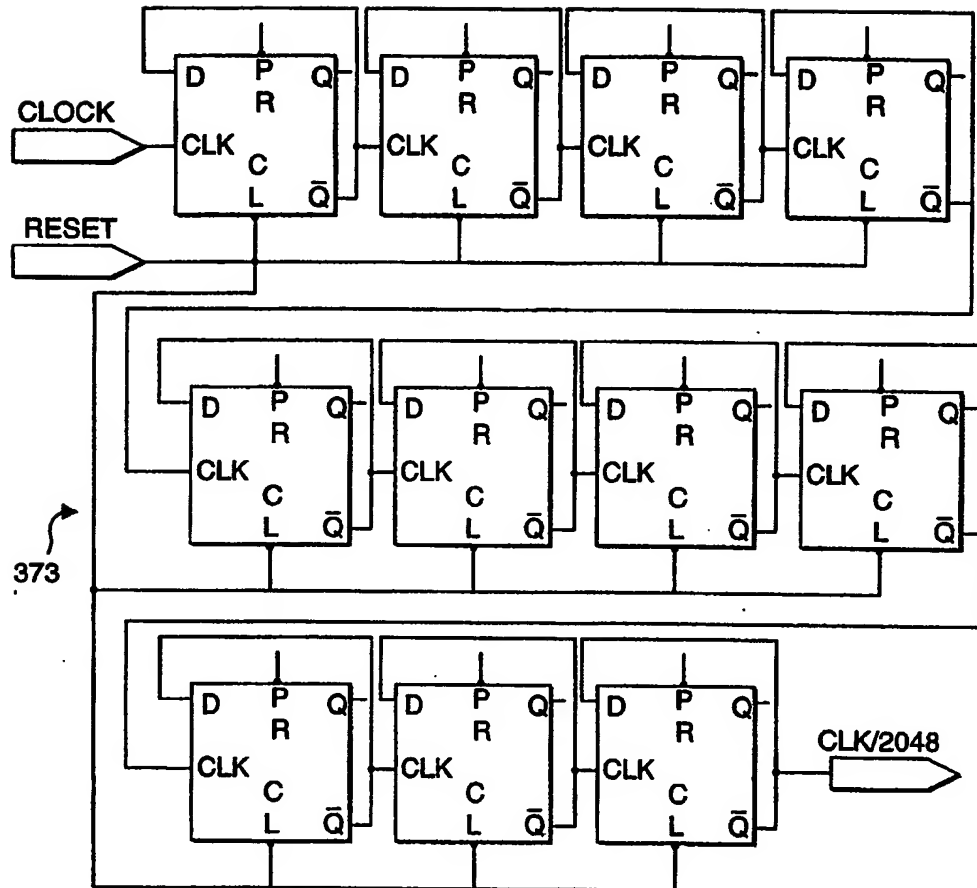


FIG. 29C

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$$\left\{ \begin{array}{l} E_0 = \overline{(B1 + A_0) (C_3 / C_{1-1})} \\ E_{IM} = E_{IPD} = E_{IAD} = \overline{(C_3 / C_{1-2}) + B1} \\ E_L = \overline{[(C_3 / C_{1-1}) + B1]} [B2] \\ E_2 = \overline{(C_2 / C_1) (B1)} \end{array} \right.$$

FIG. 29D

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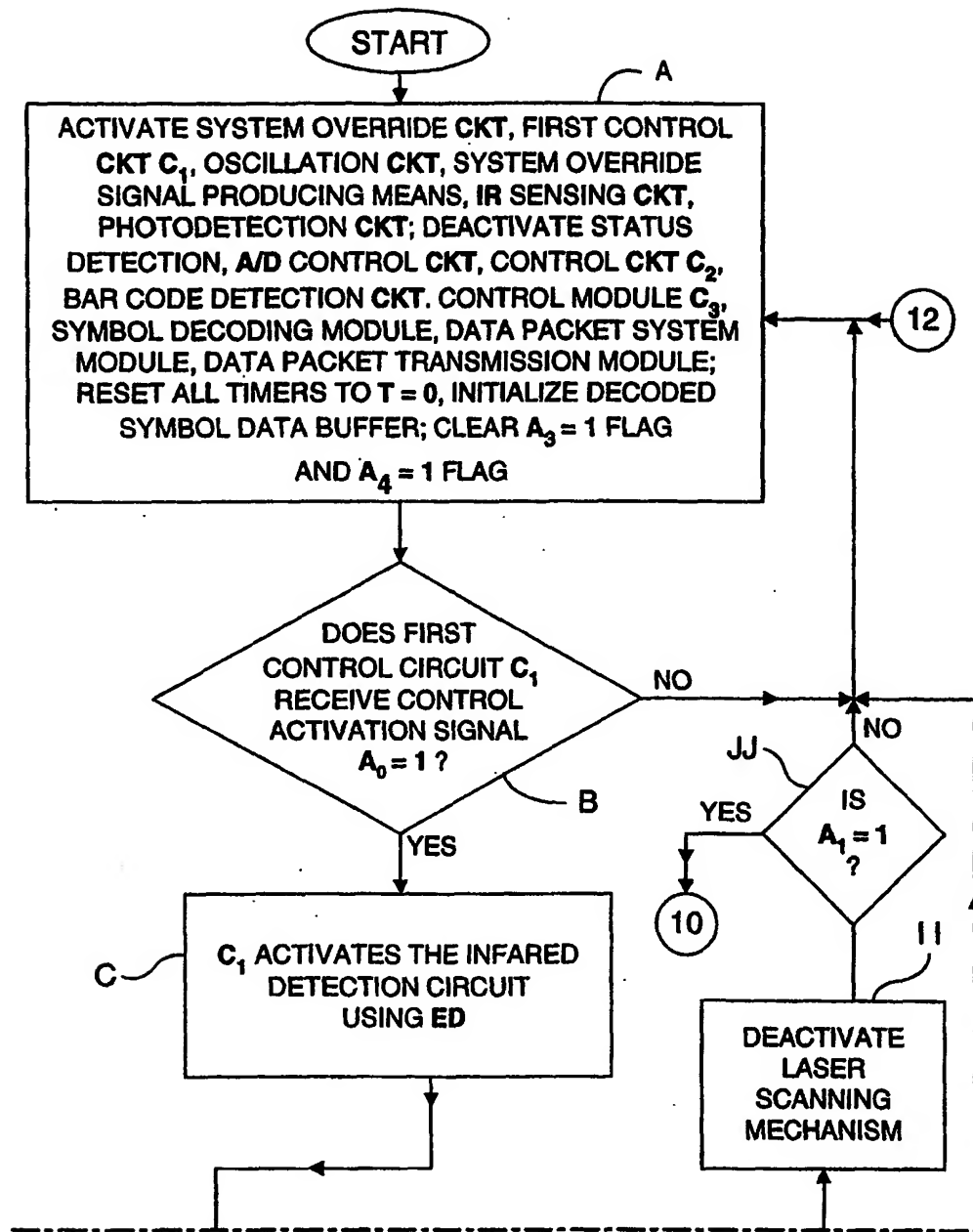
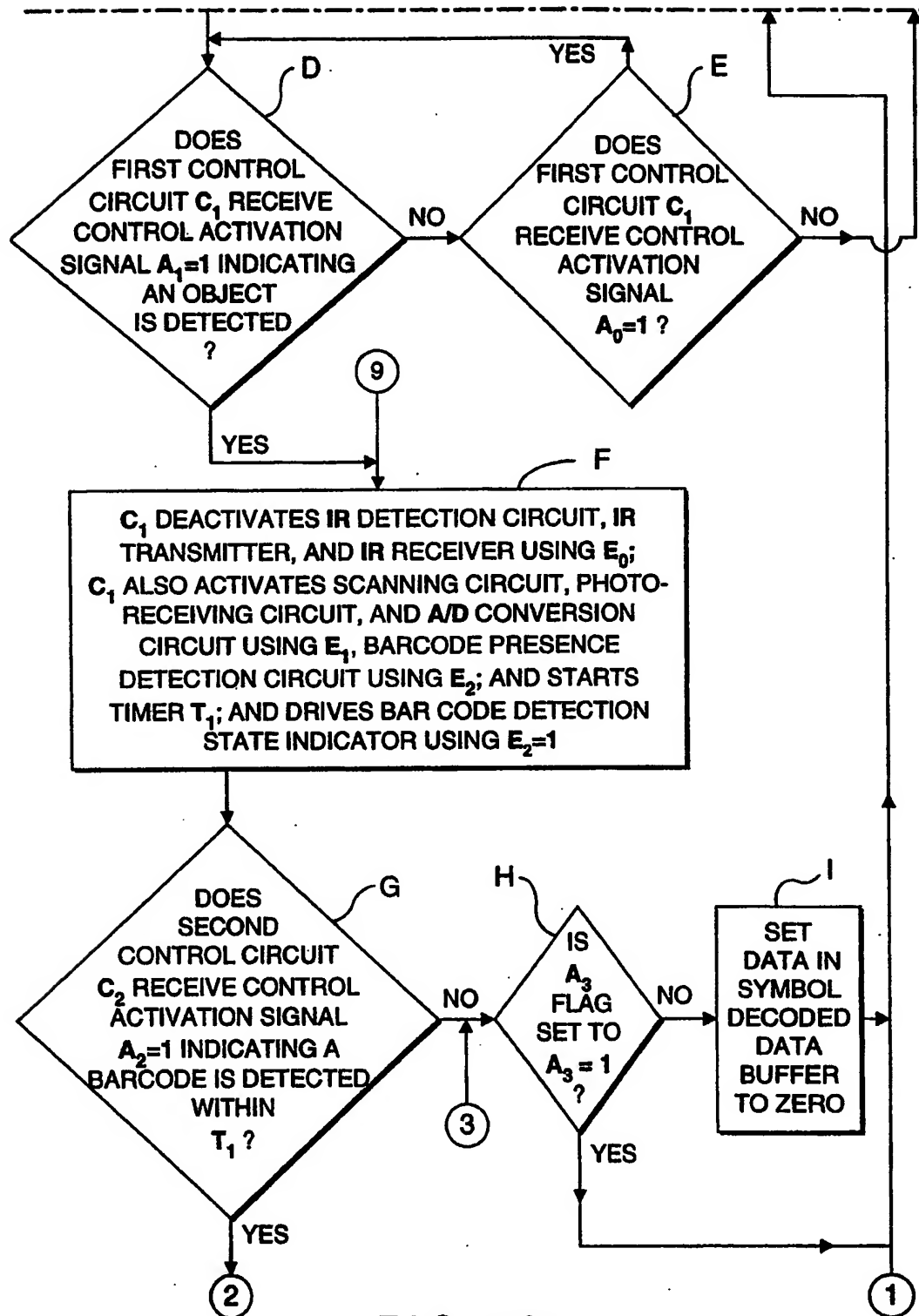


FIG. 30A1



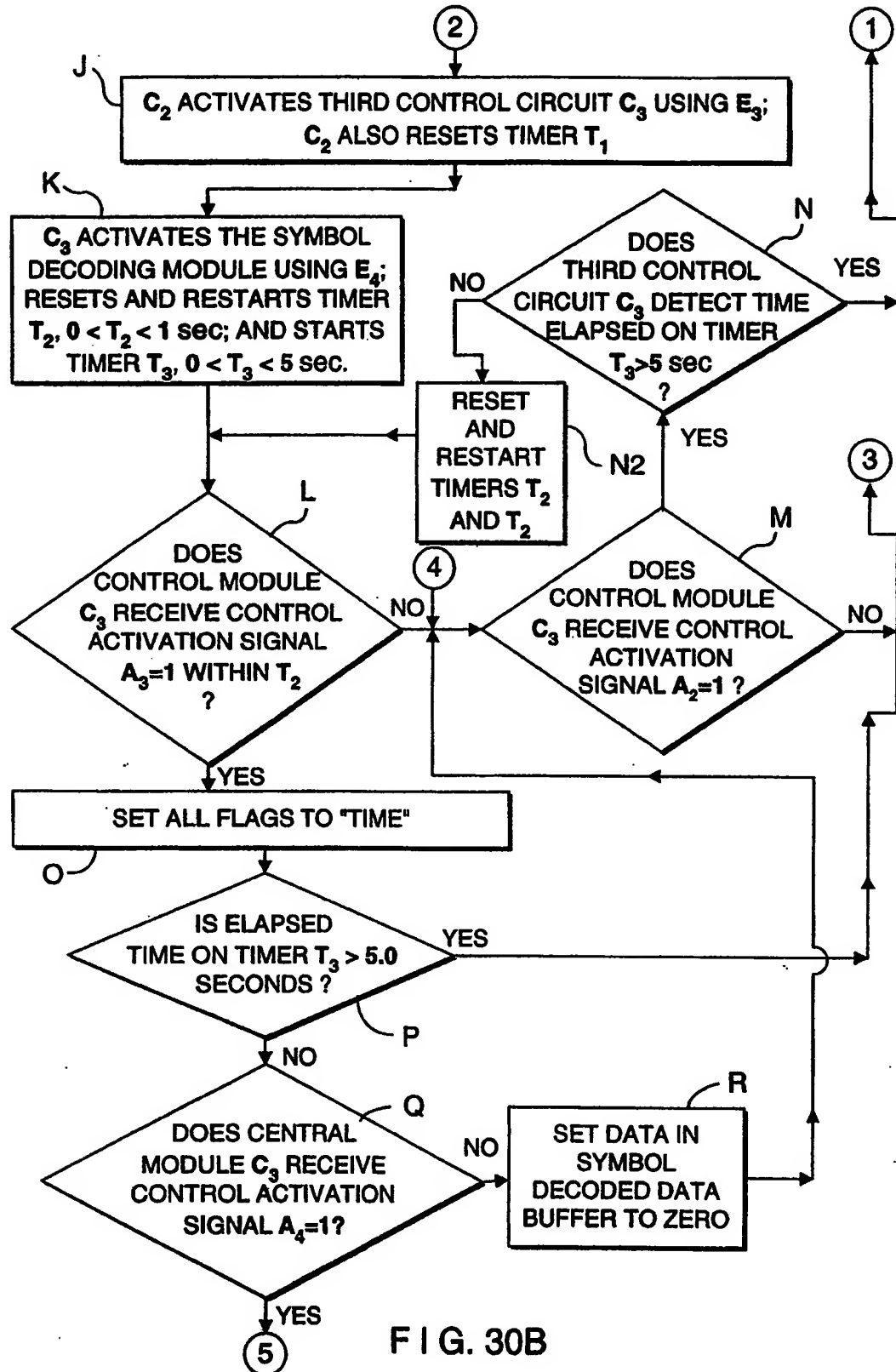
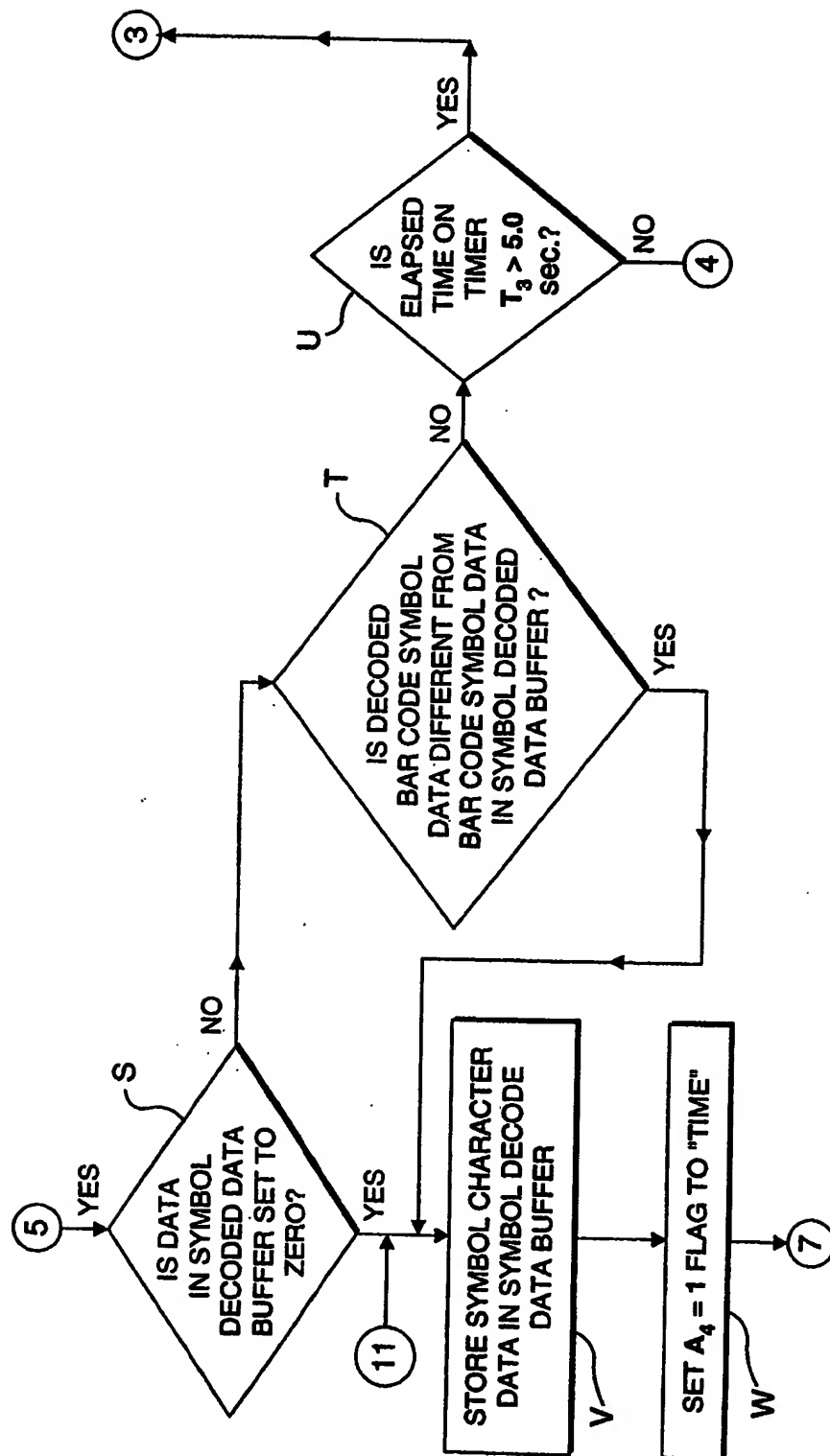


FIG. 30B



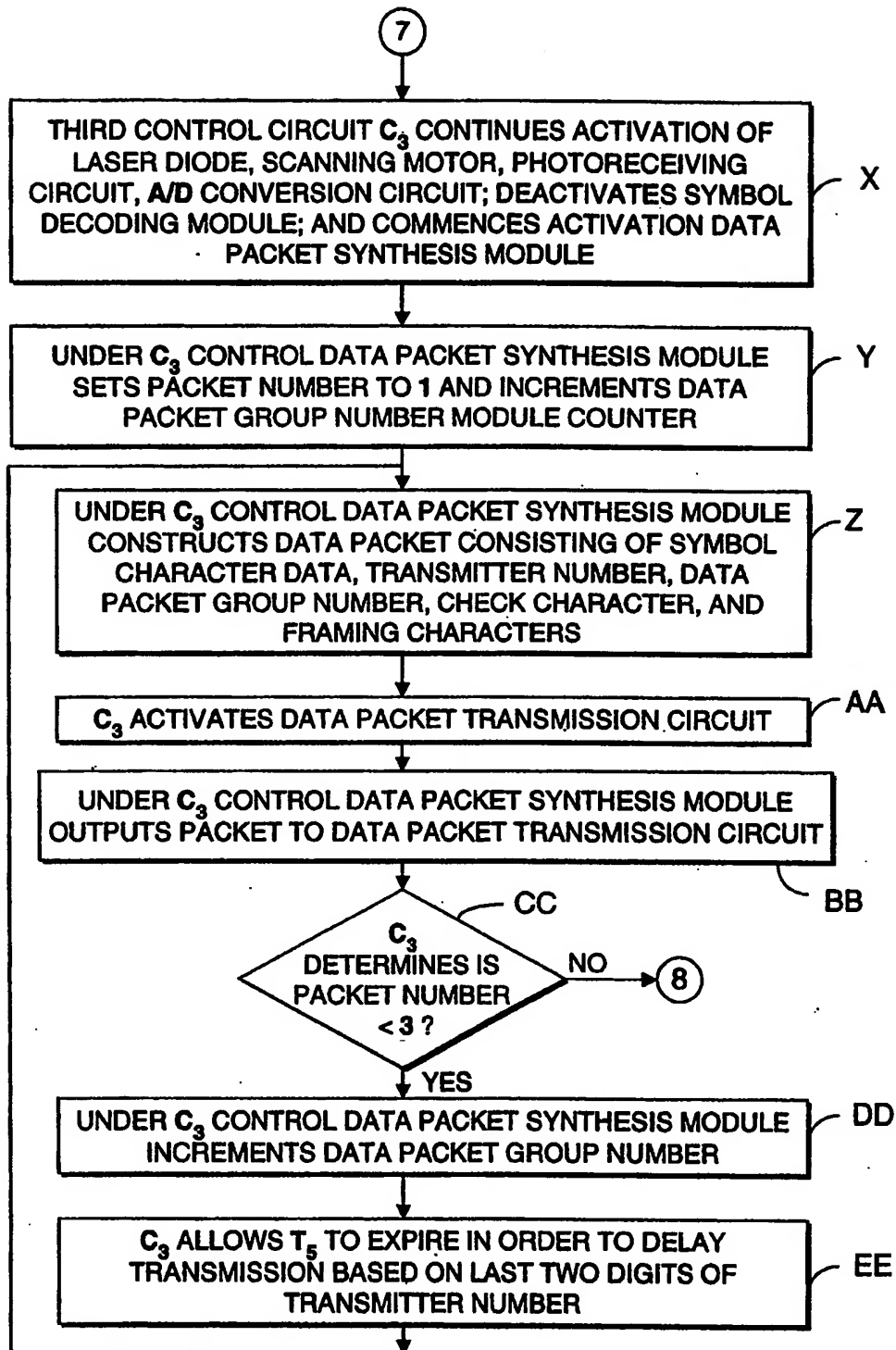


FIG. 30D

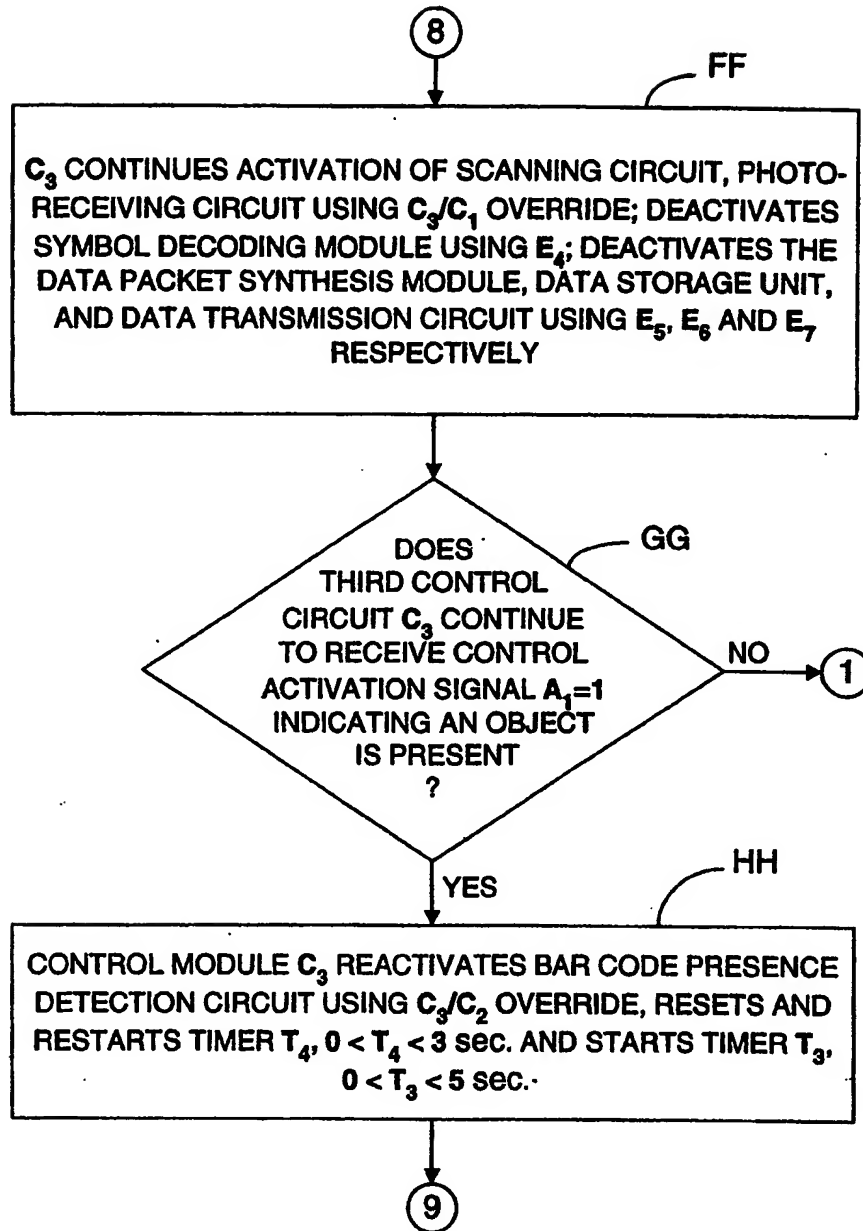


FIG. 30E

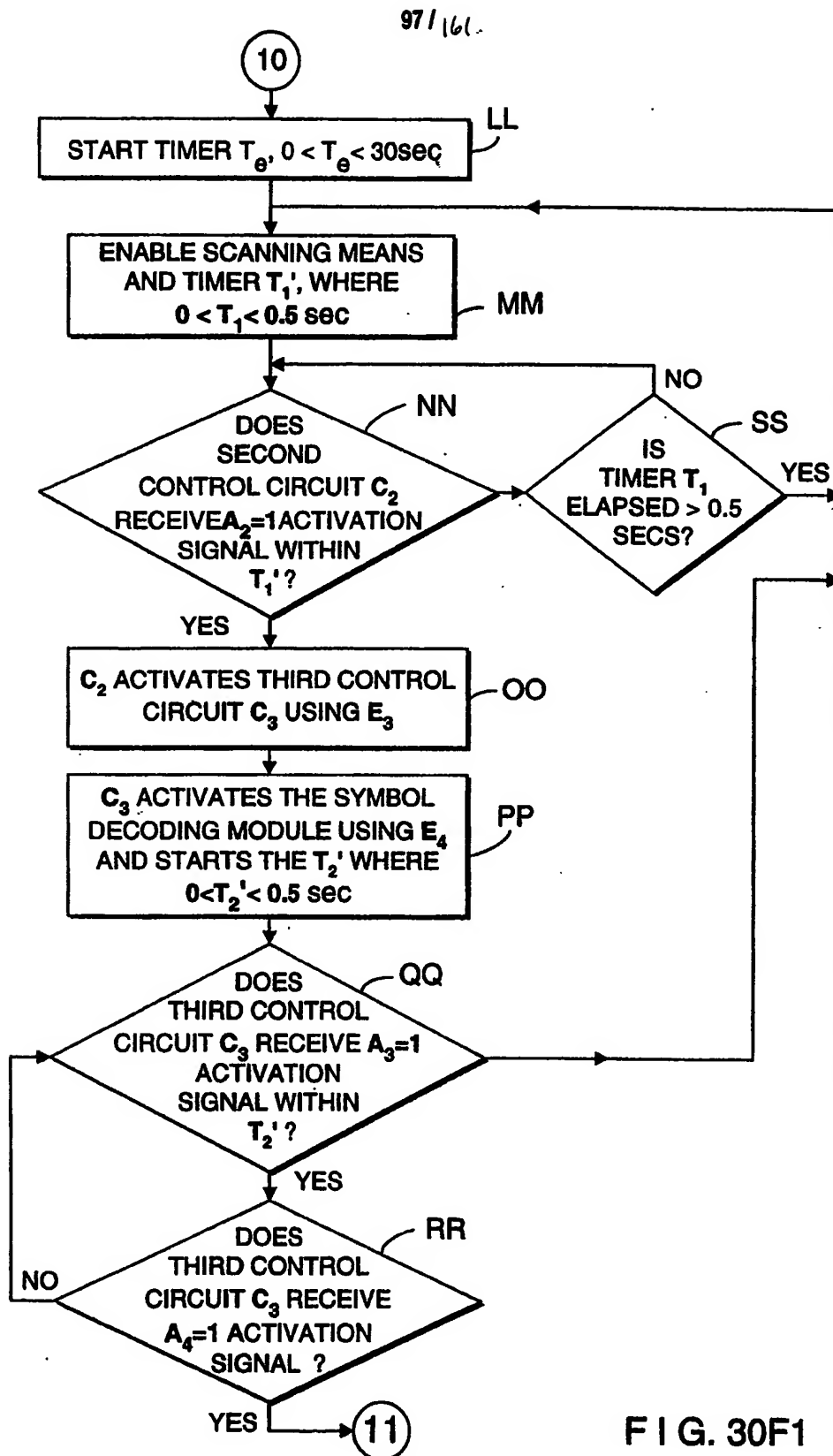
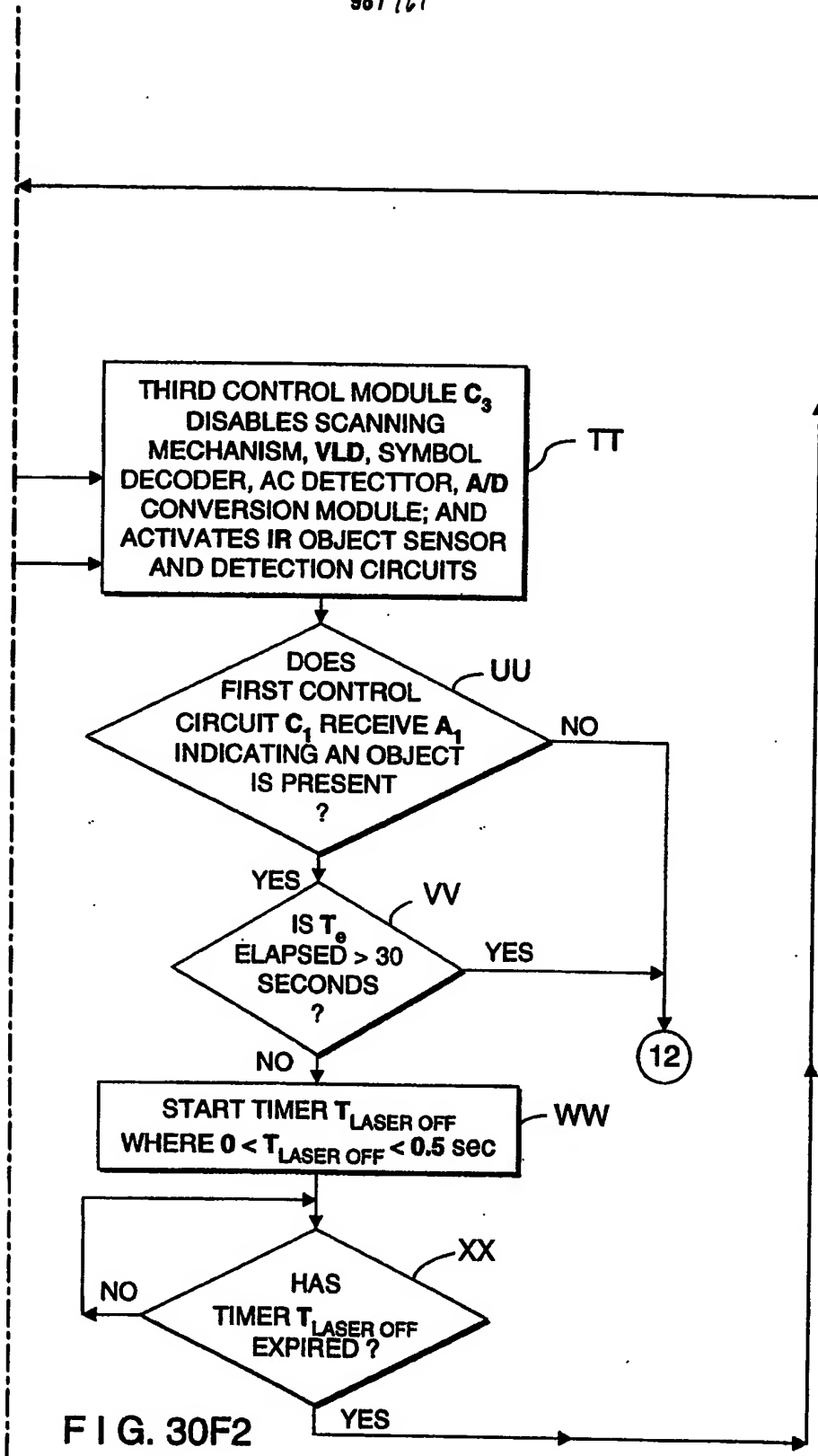


FIG. 30F1



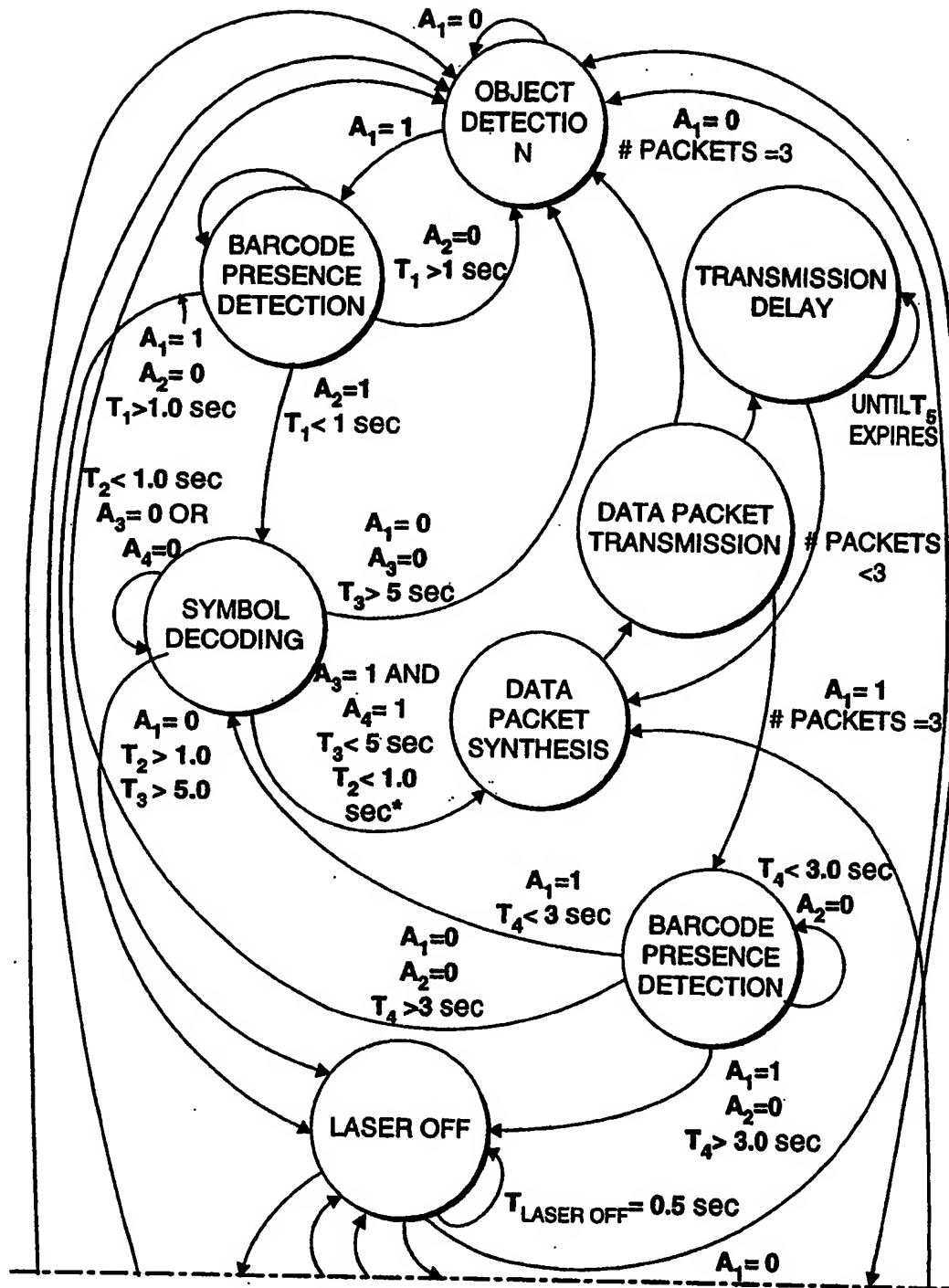
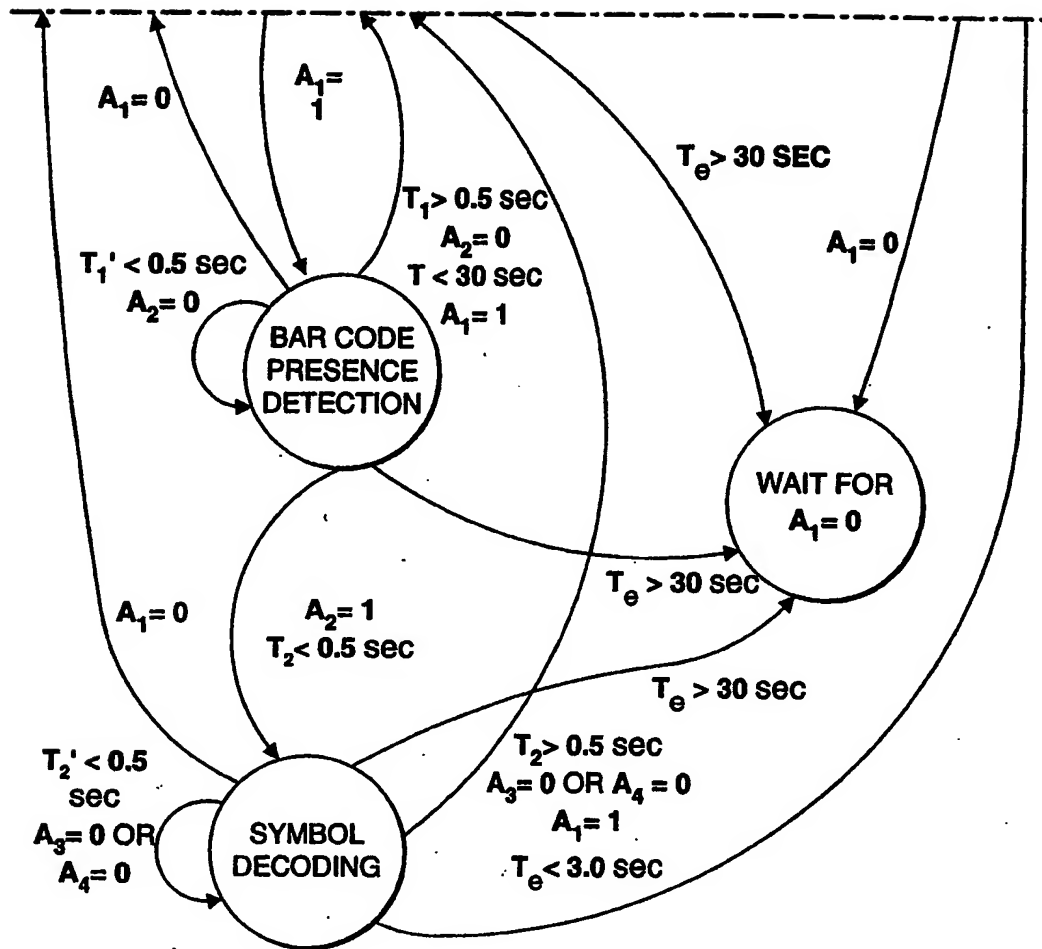


FIG. 31A



$A_3=1, A_4=1$
 $T_2' < 0.5 \text{ sec}$

*: SYMBOL CHARACTER
 DATA IS DIFFERENT
 THAN DATA ELEMENT IN
 DECODED SYMBOL
 DATA BUFFER

FIG. 31B

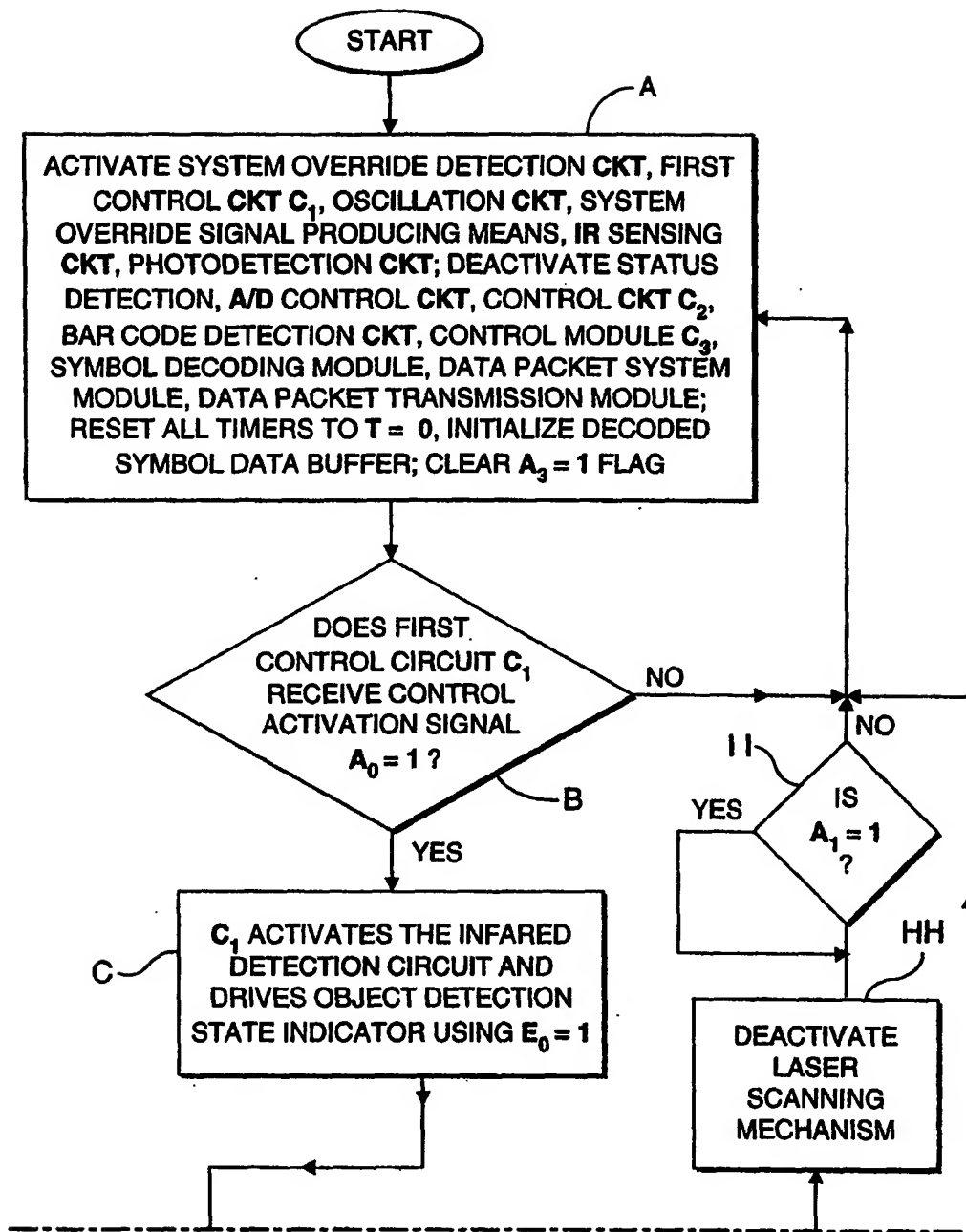


FIG. 32A1

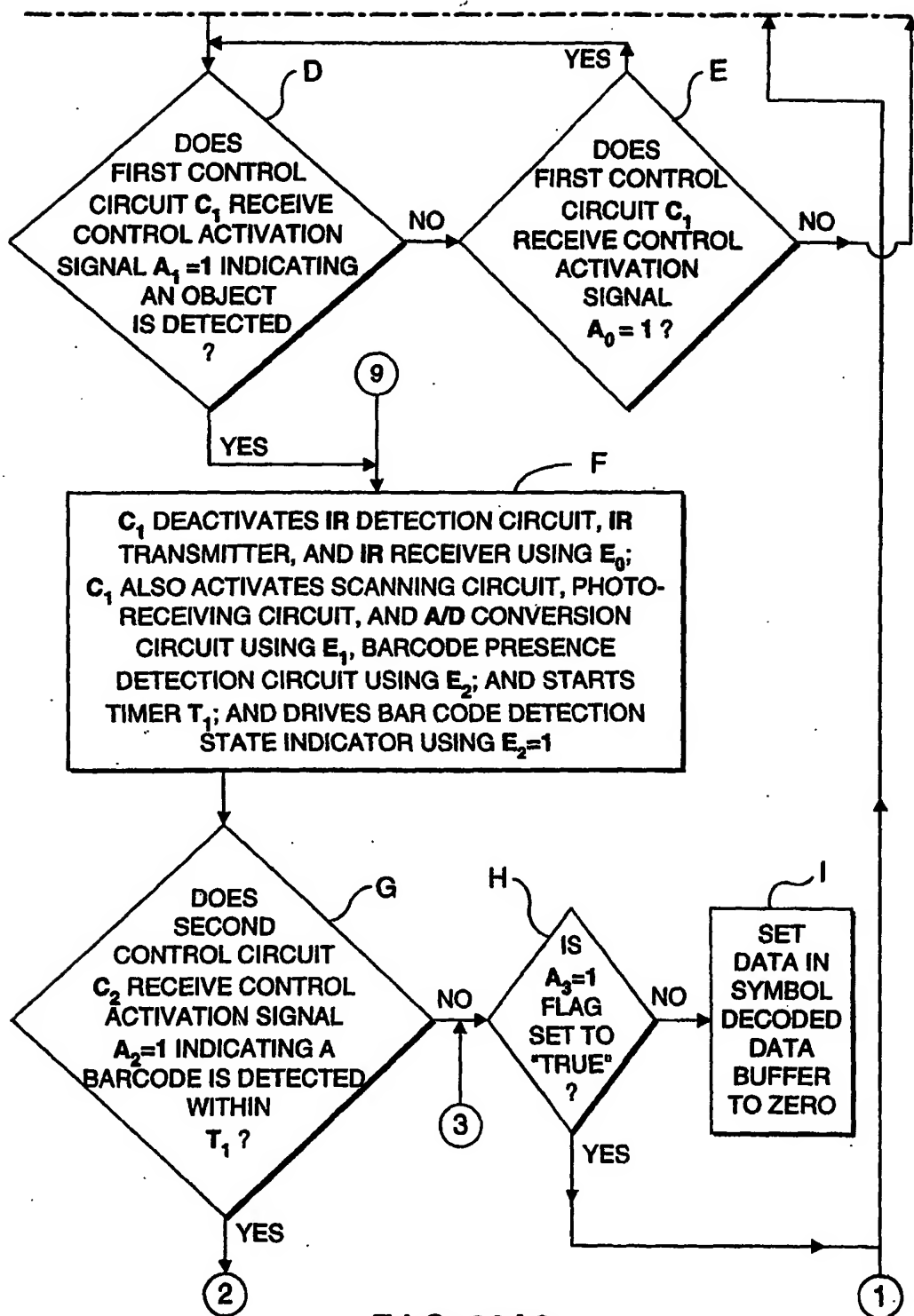


FIG. 32A2

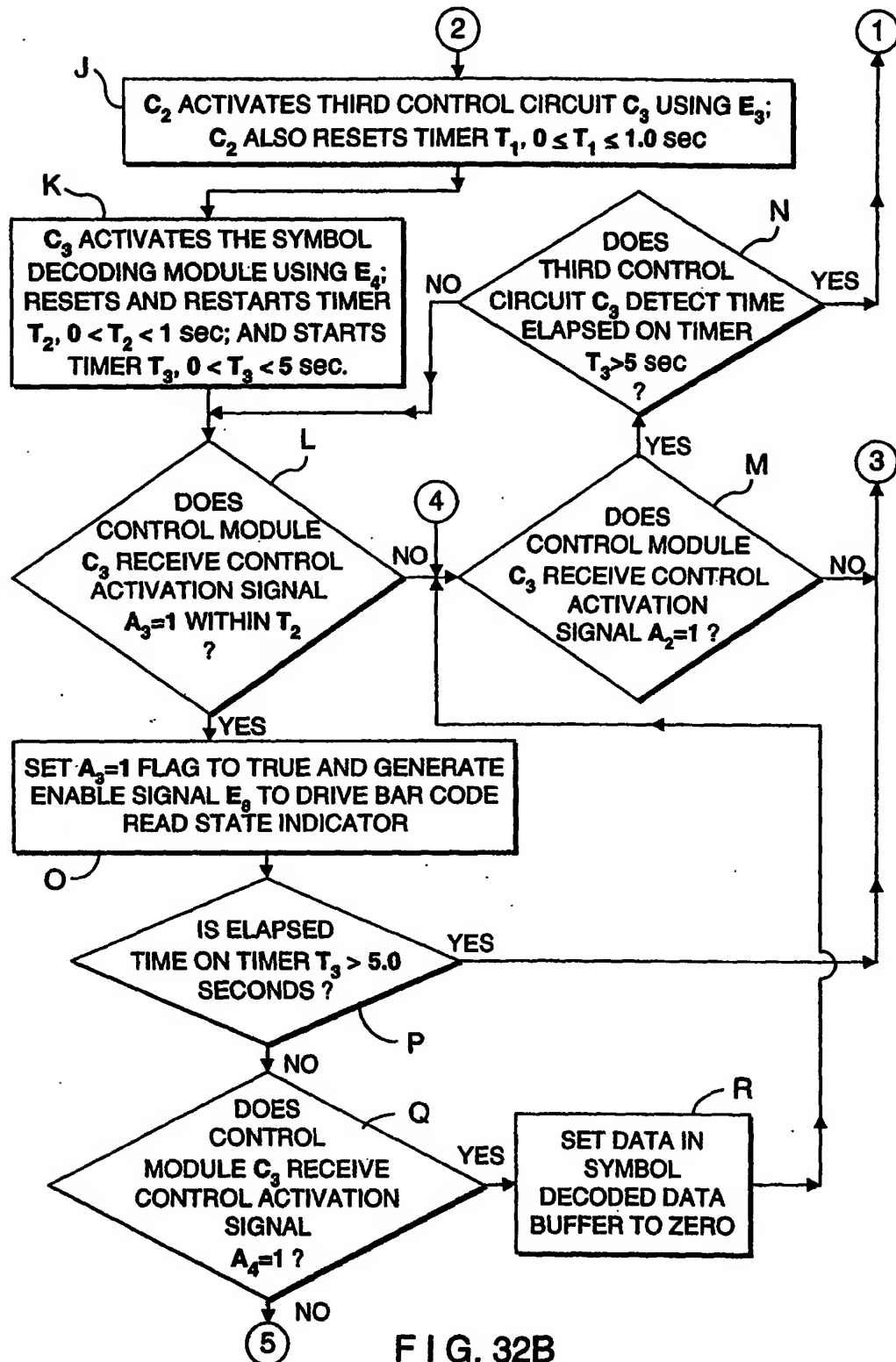


FIG. 32B

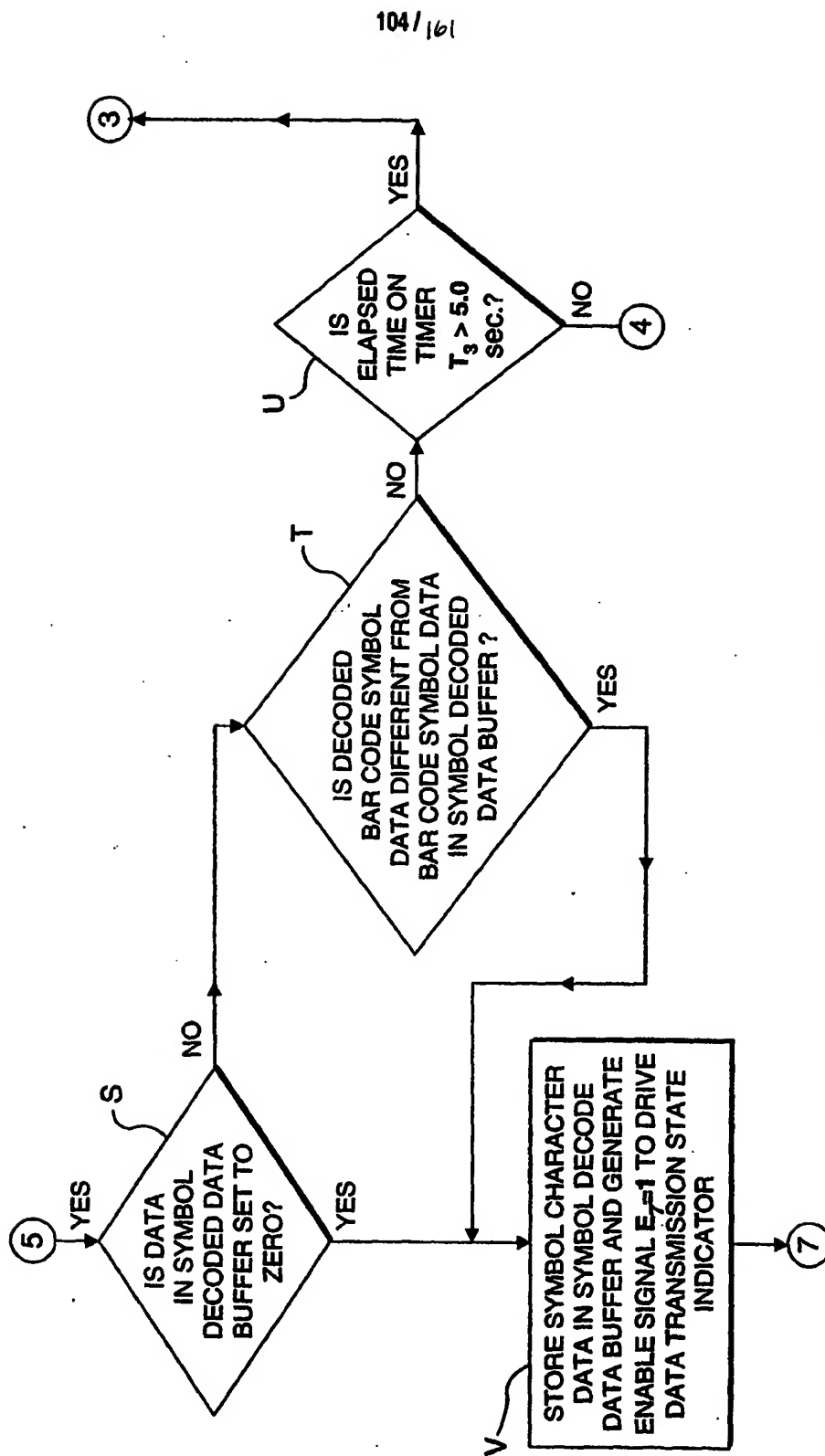


FIG. 32C

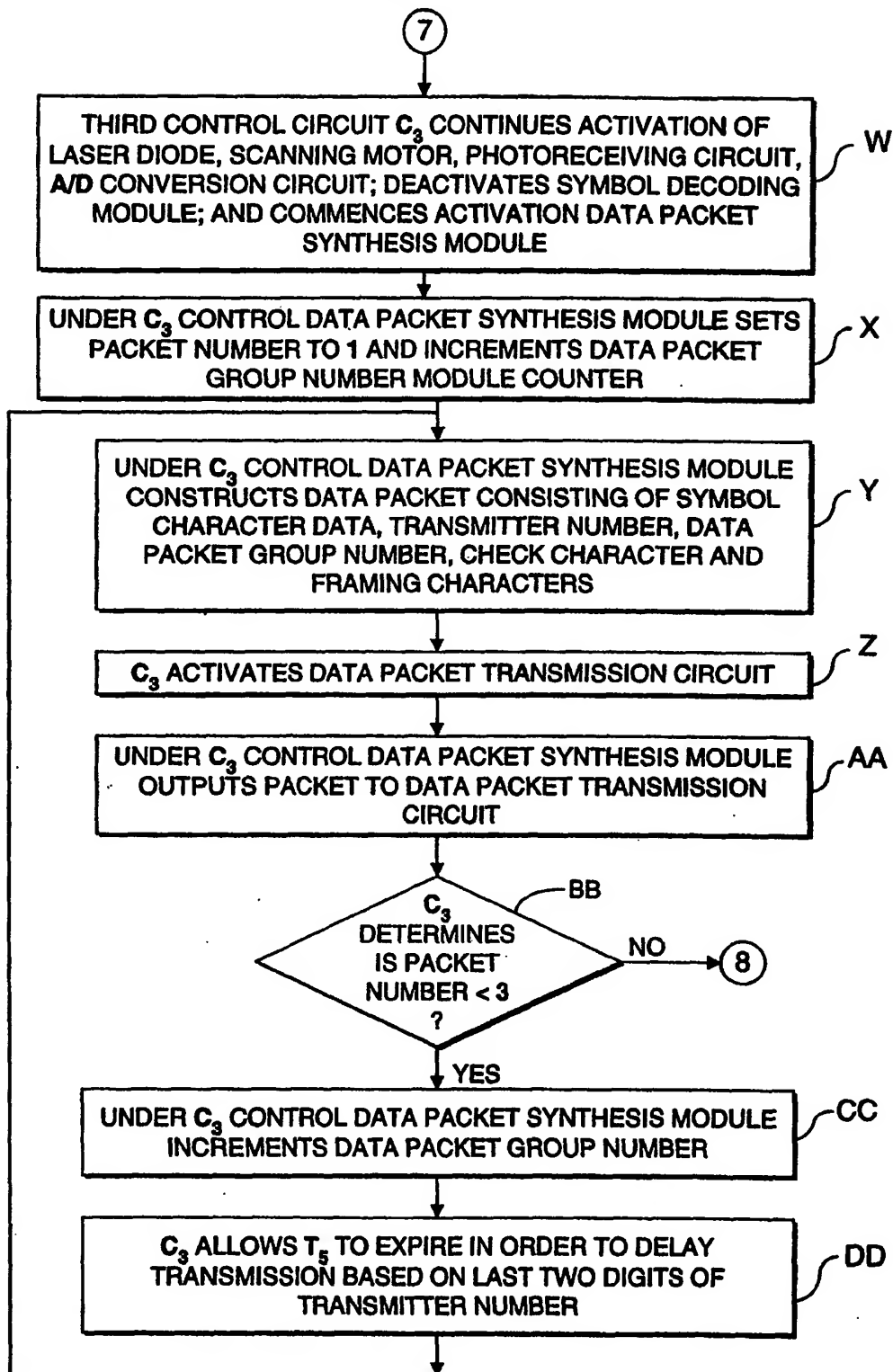


FIG. 32D

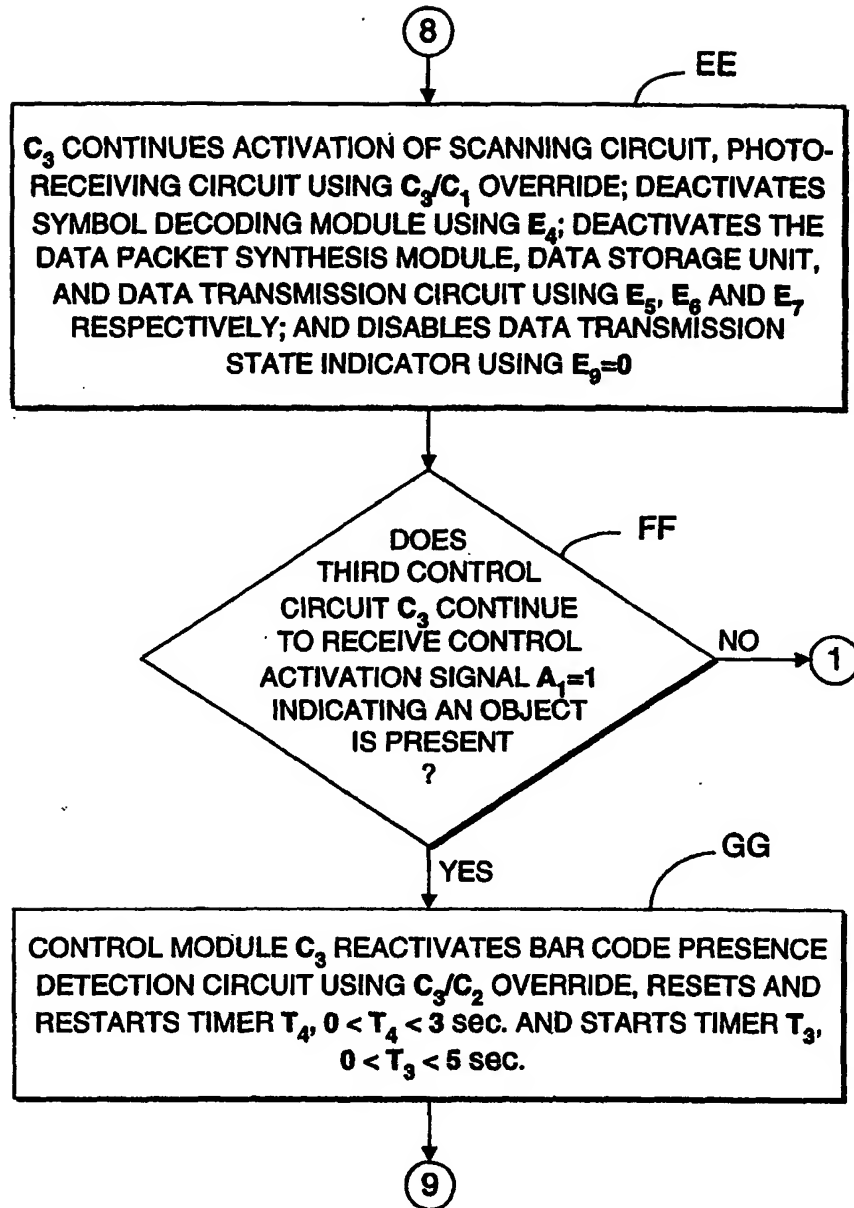


FIG. 32E

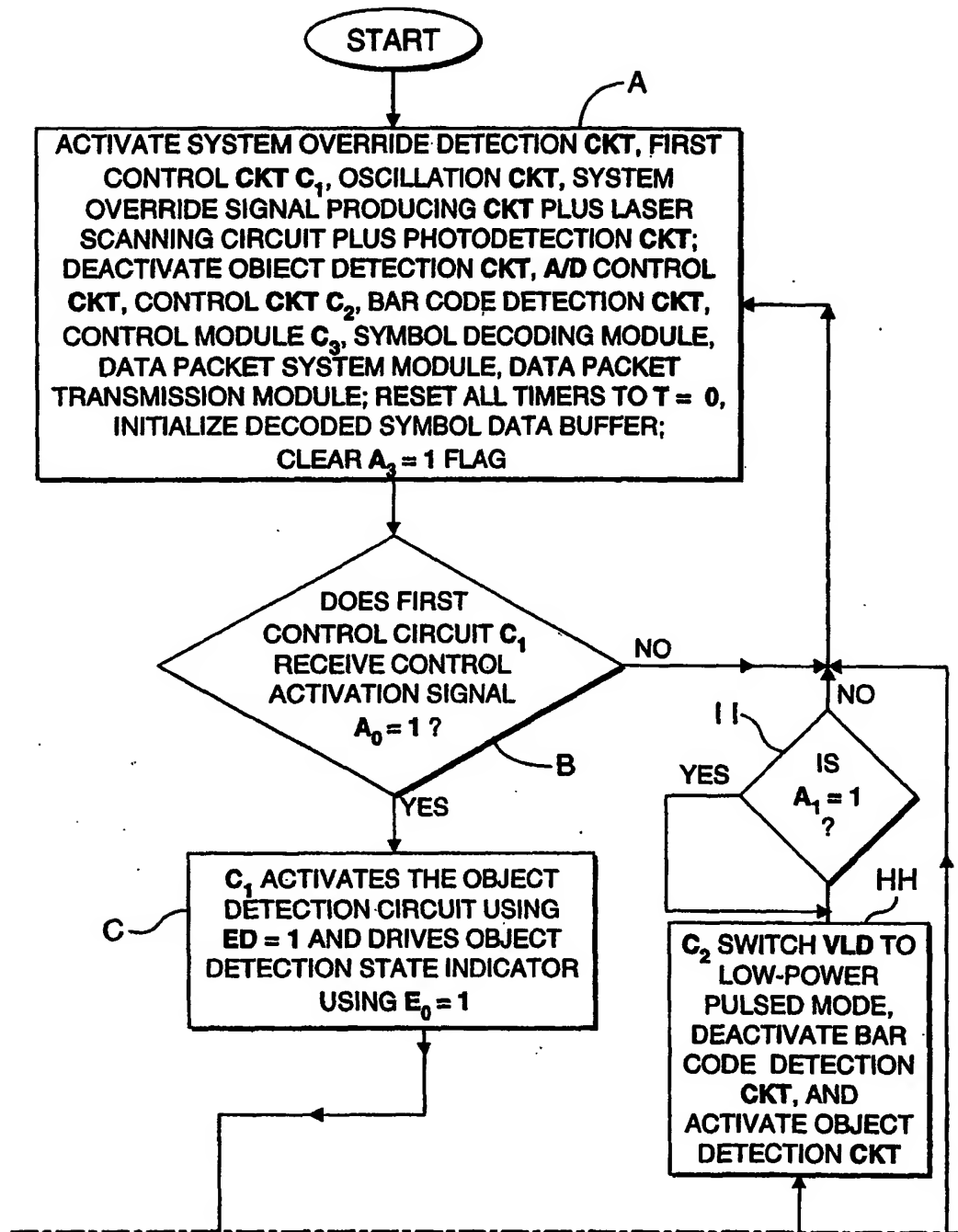


FIG. 33A1

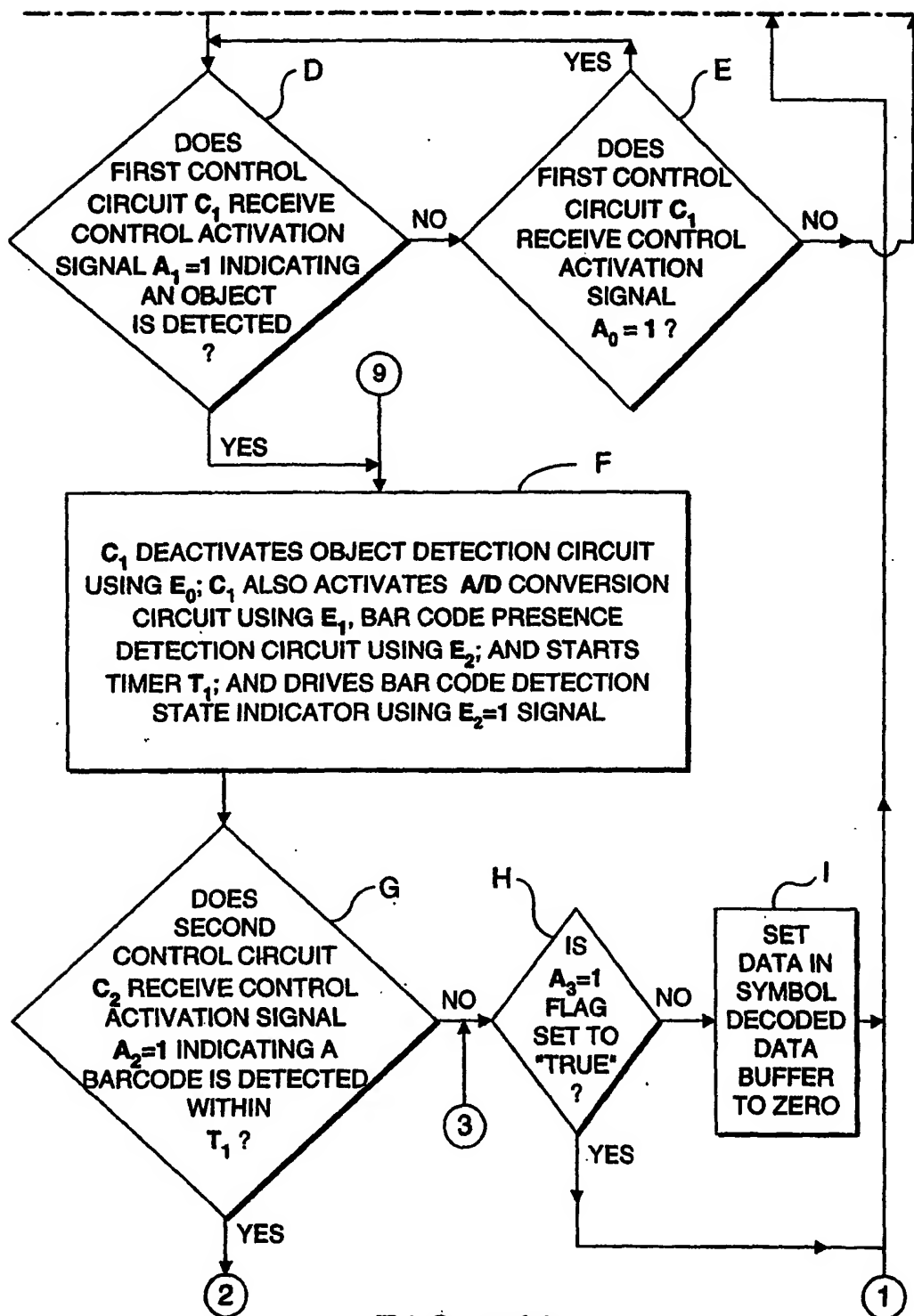


FIG. 33A2

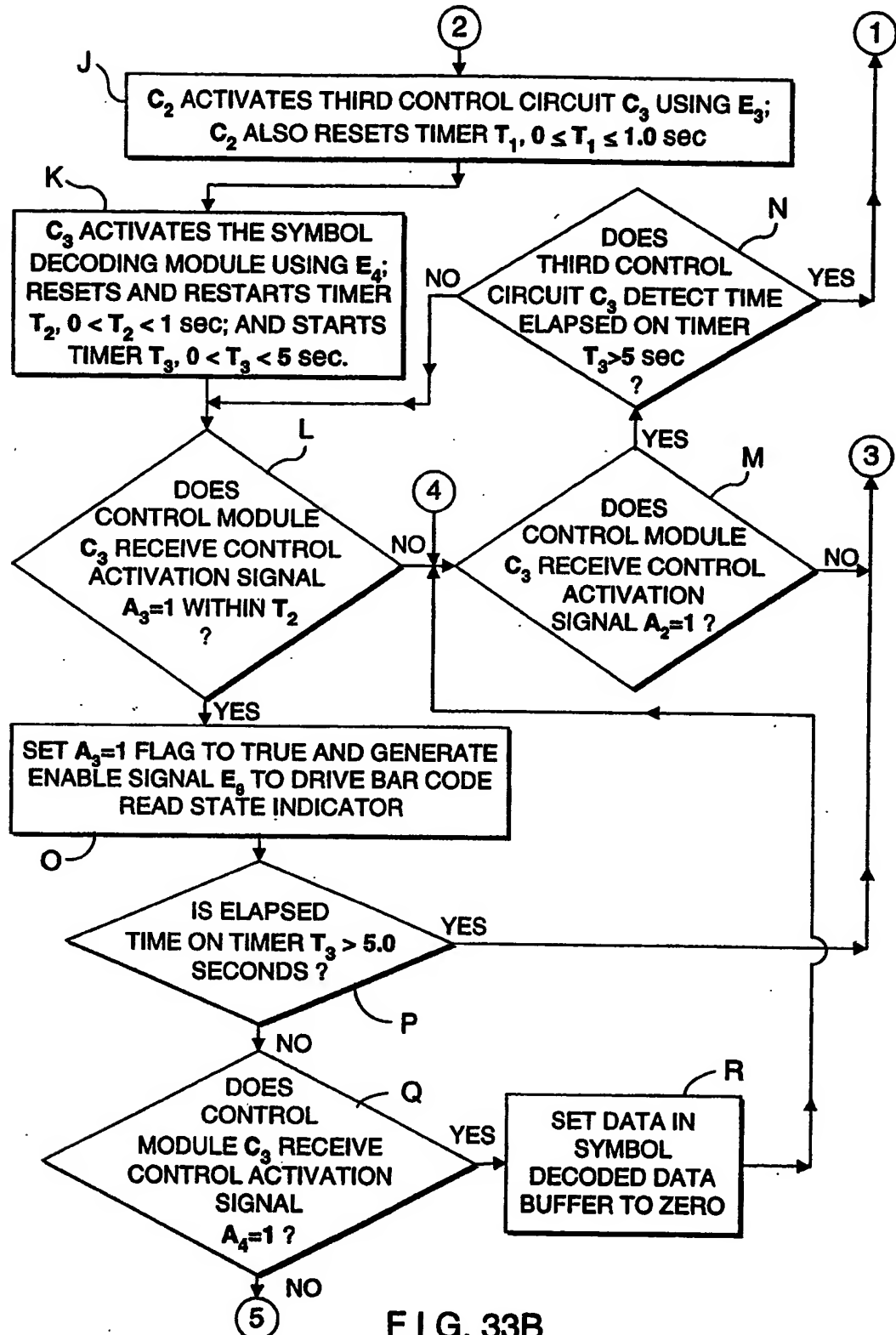


FIG. 33B

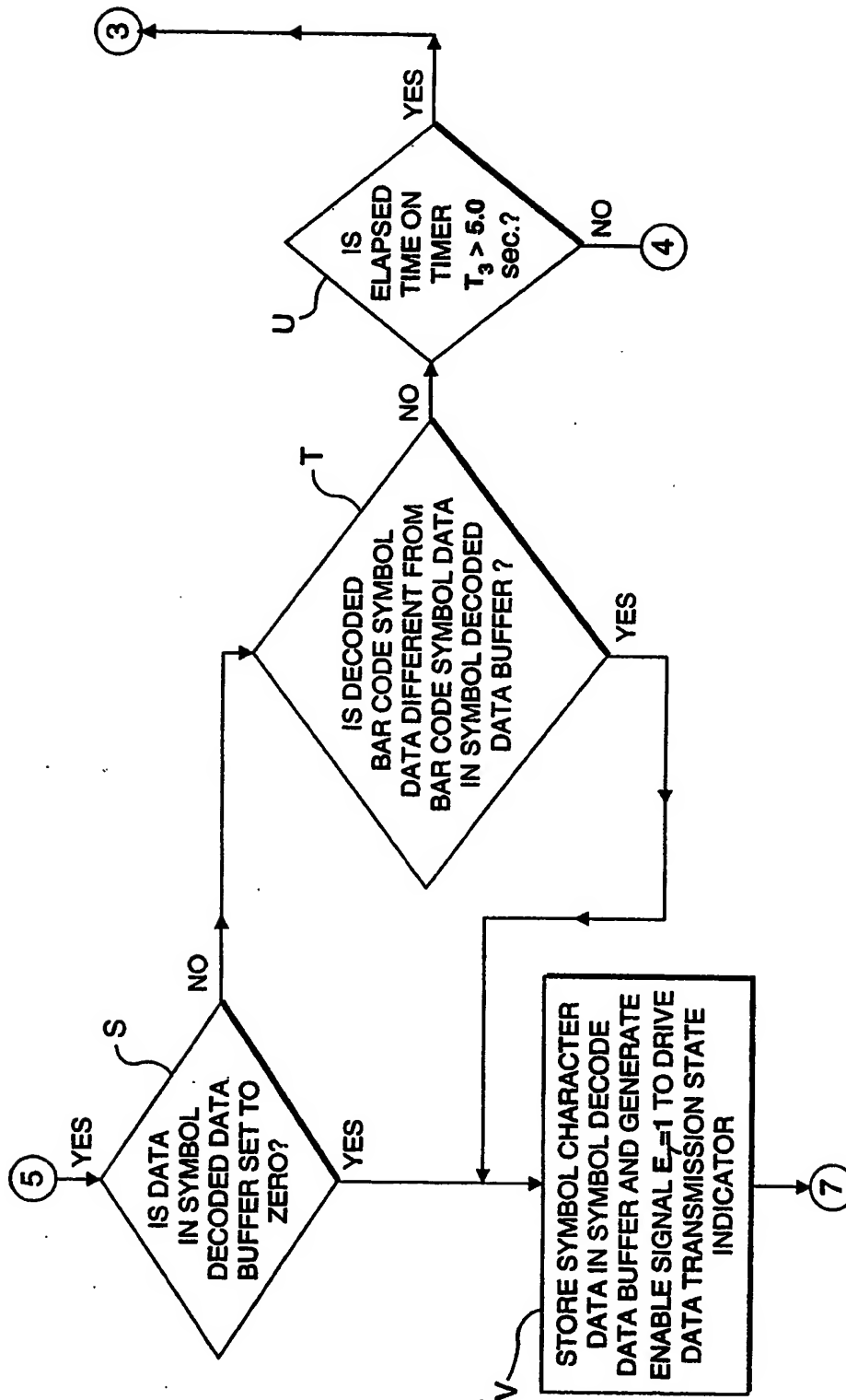


FIG. 33C

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THIRD CONTROL CIRCUIT C_3 CONTINUES ACTIVATION OF LASER DIODE, SCANNING MOTOR, PHOTORECEIVING CIRCUIT, A/D CONVERSION CIRCUIT; DEACTIVATES SYMBOL DECODING MODULE; AND COMMENCES ACTIVATION DATA PACKET SYNTHESIS MODULE

W

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE SETS PACKET NUMBER TO 1 AND INCREMENTS DATA PACKET GROUP NUMBER MODULE COUNTER

X

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE CONSTRUCTS DATA PACKET CONSISTING OF SYMBOL CHARACTER DATA, TRANSMITTER NUMBER, DATA PACKET GROUP NUMBER, CHECK CHARACTER AND FRAMING CHARACTERS

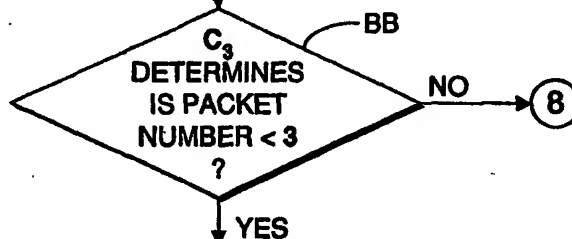
Y

C_3 ACTIVATES DATA PACKET TRANSMISSION CIRCUIT

Z

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE OUTPUTS PACKET TO DATA PACKET TRANSMISSION CIRCUIT

AA



8

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE INCREMENTS DATA PACKET GROUP NUMBER

CC

C_3 ALLOWS T_5 TO EXPIRE IN ORDER TO DELAY TRANSMISSION BASED ON LAST TWO DIGITS OF TRANSMITTER NUMBER

DD

FIG. 33D

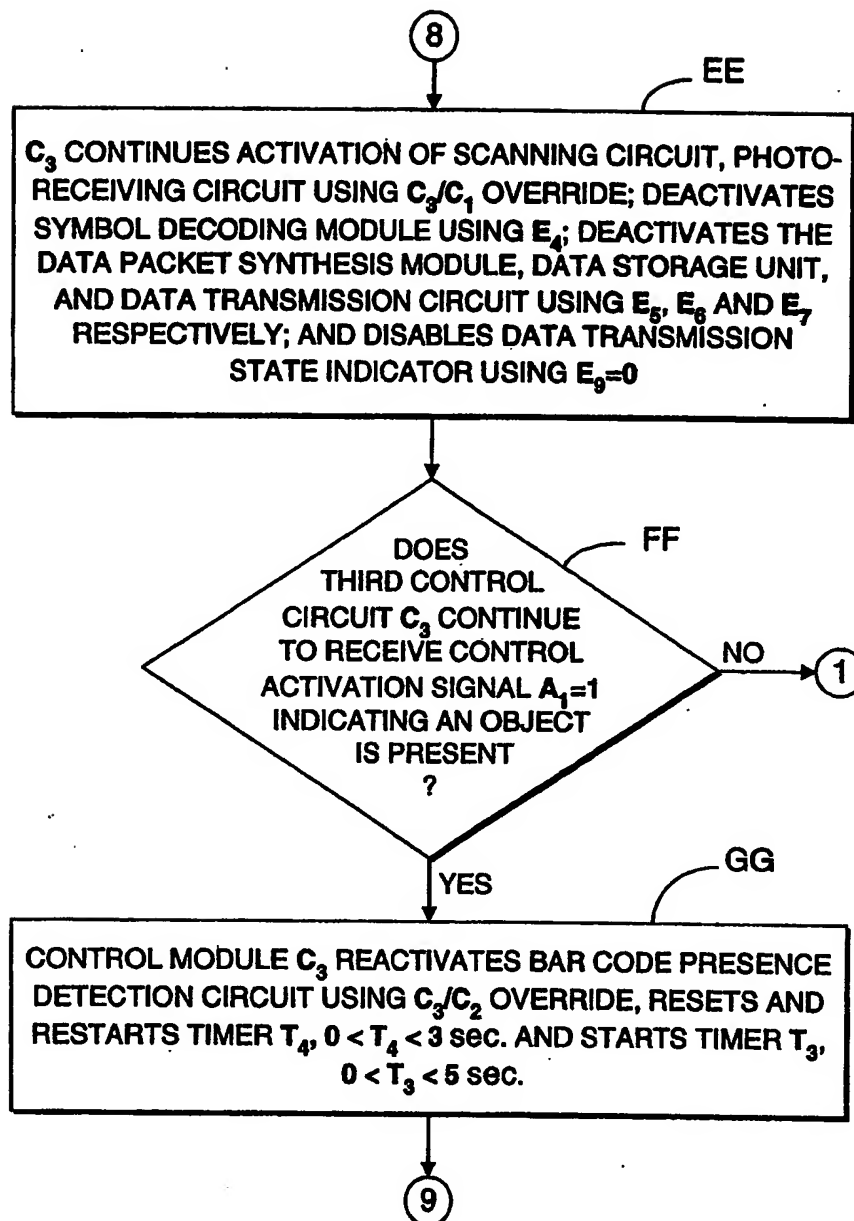
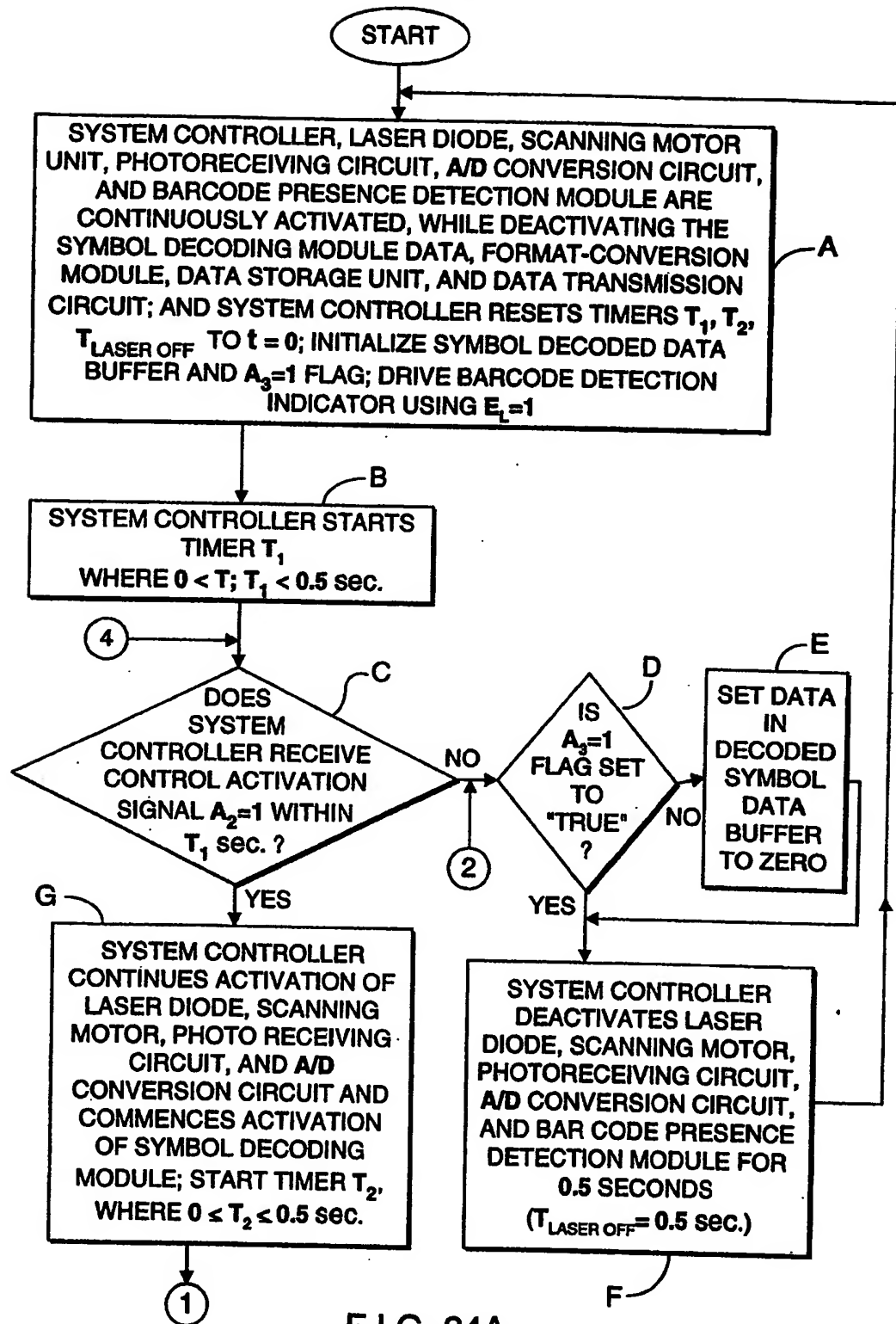


FIG. 33E



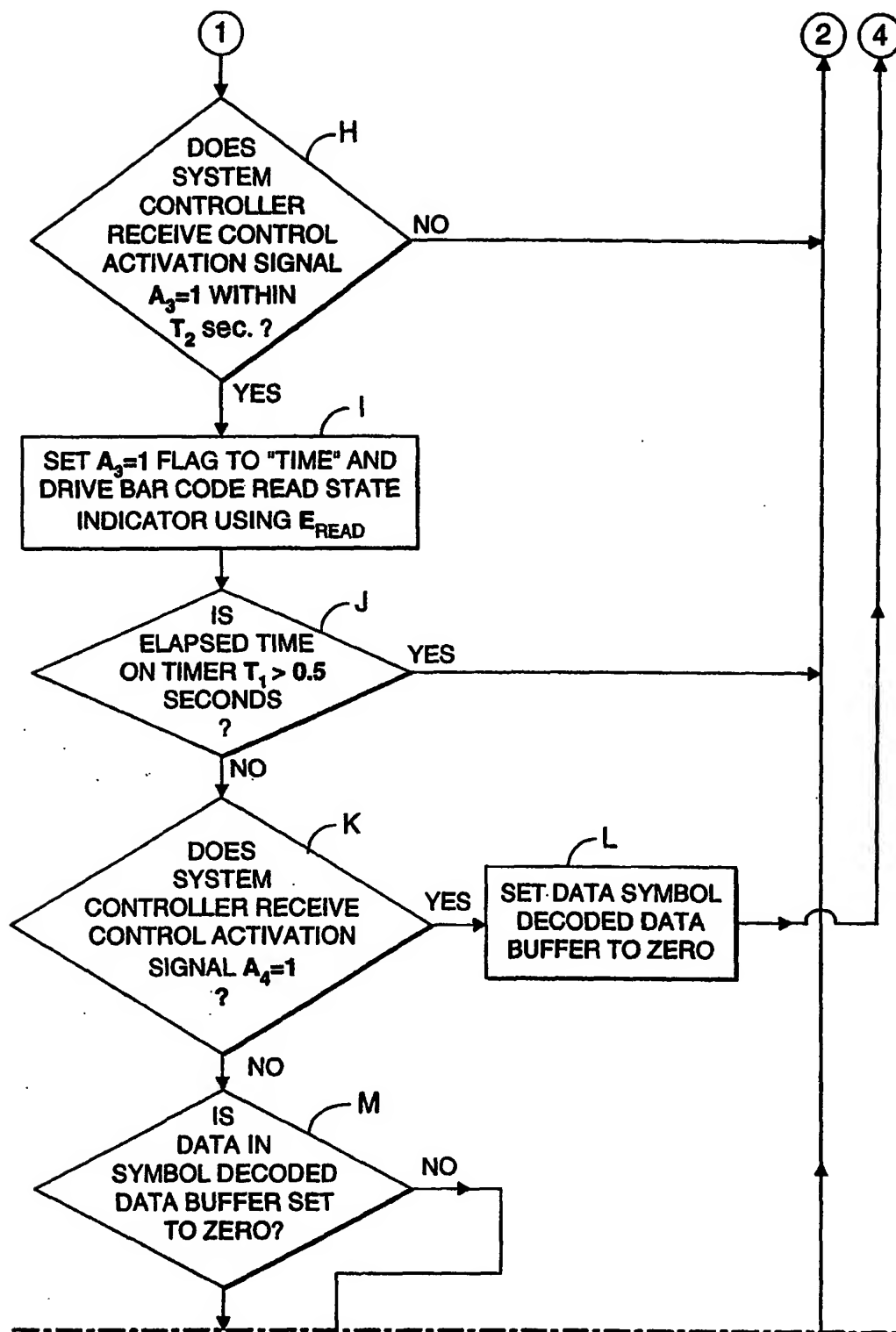


FIG. 34B1

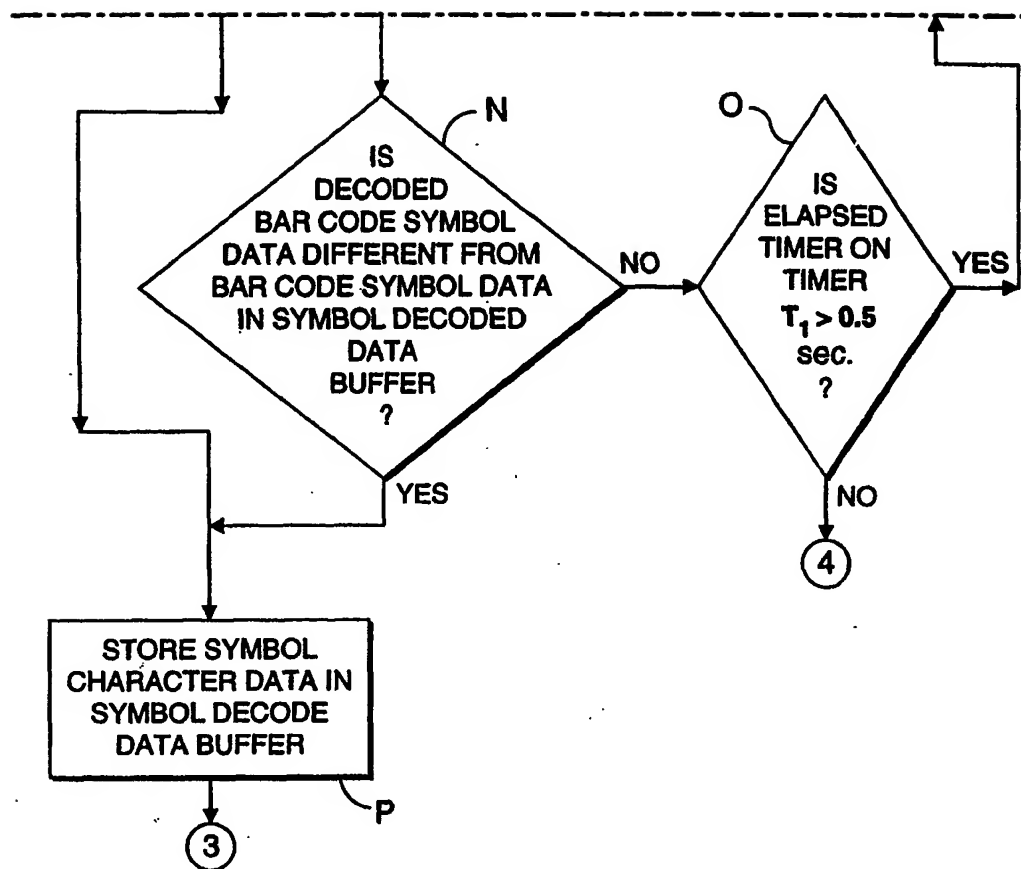


FIG. 34B2

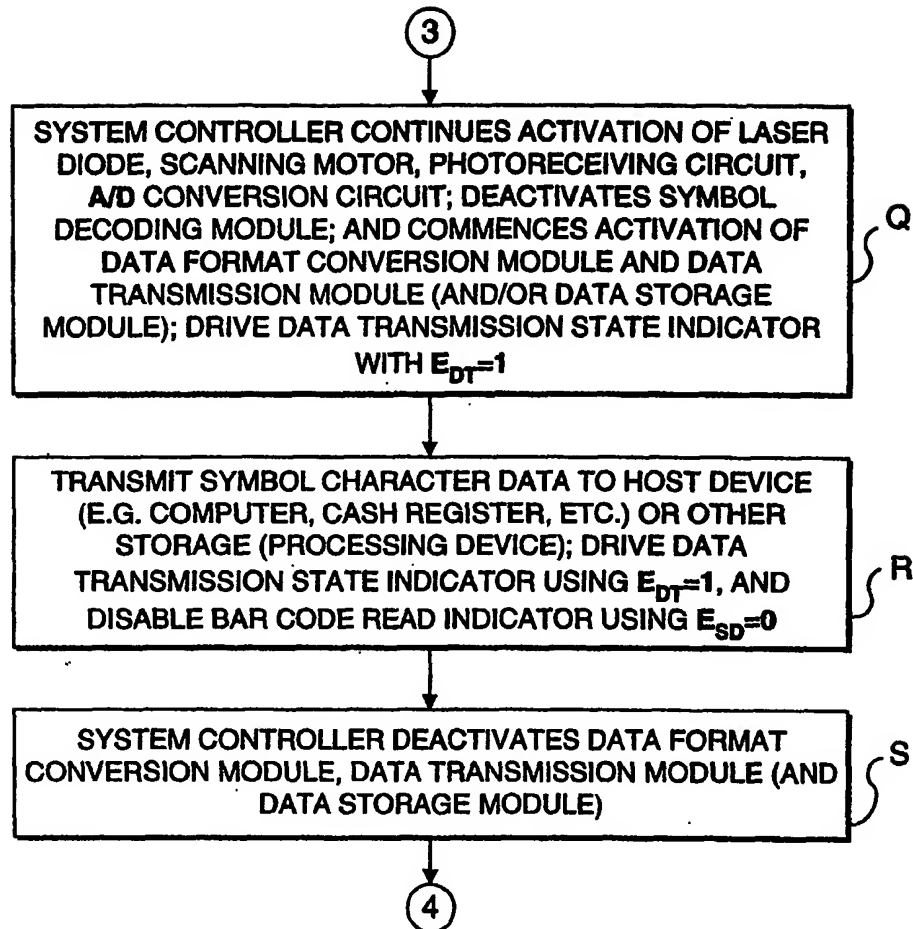


FIG. 34C

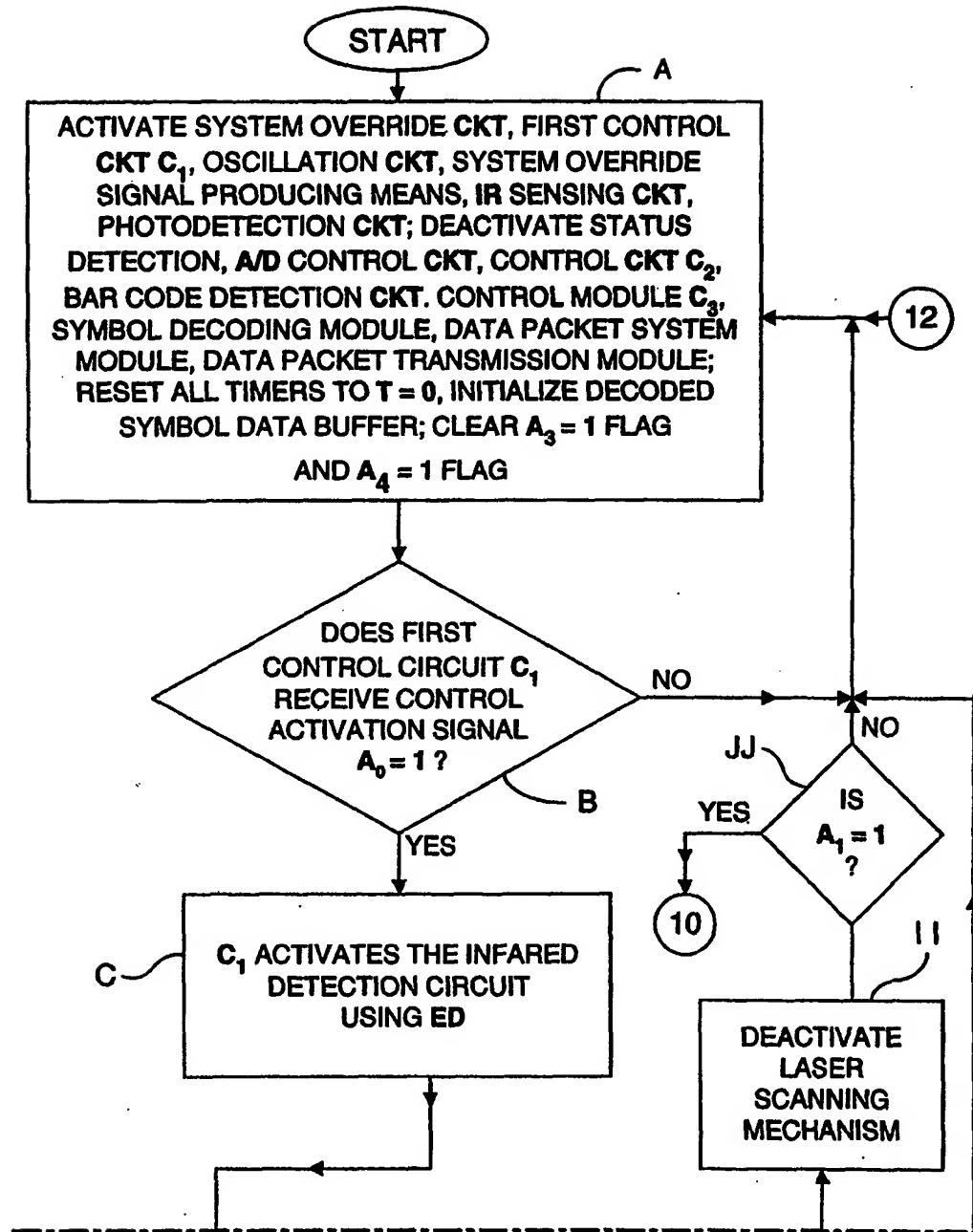


FIG. 35A1

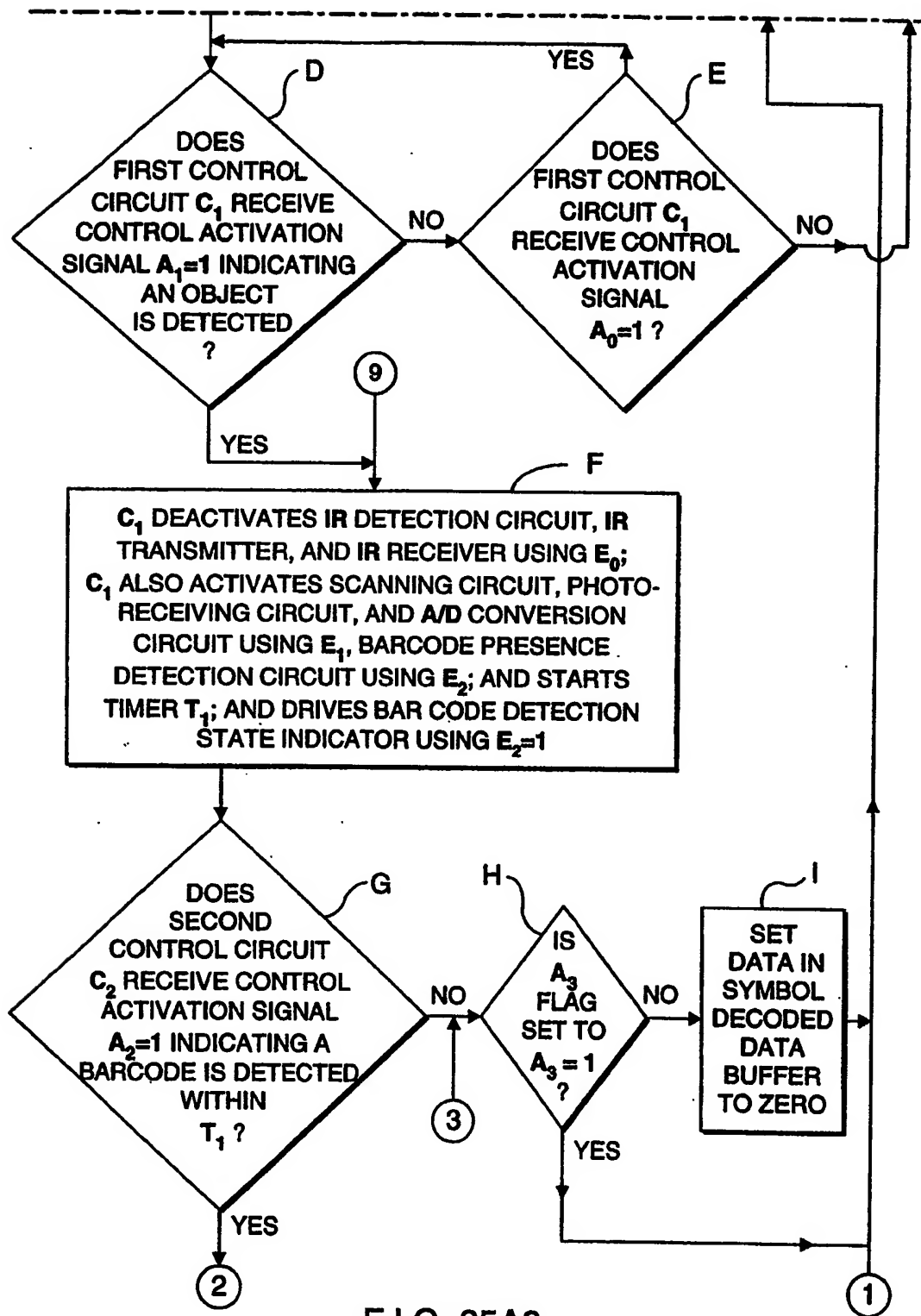


FIG. 35A2

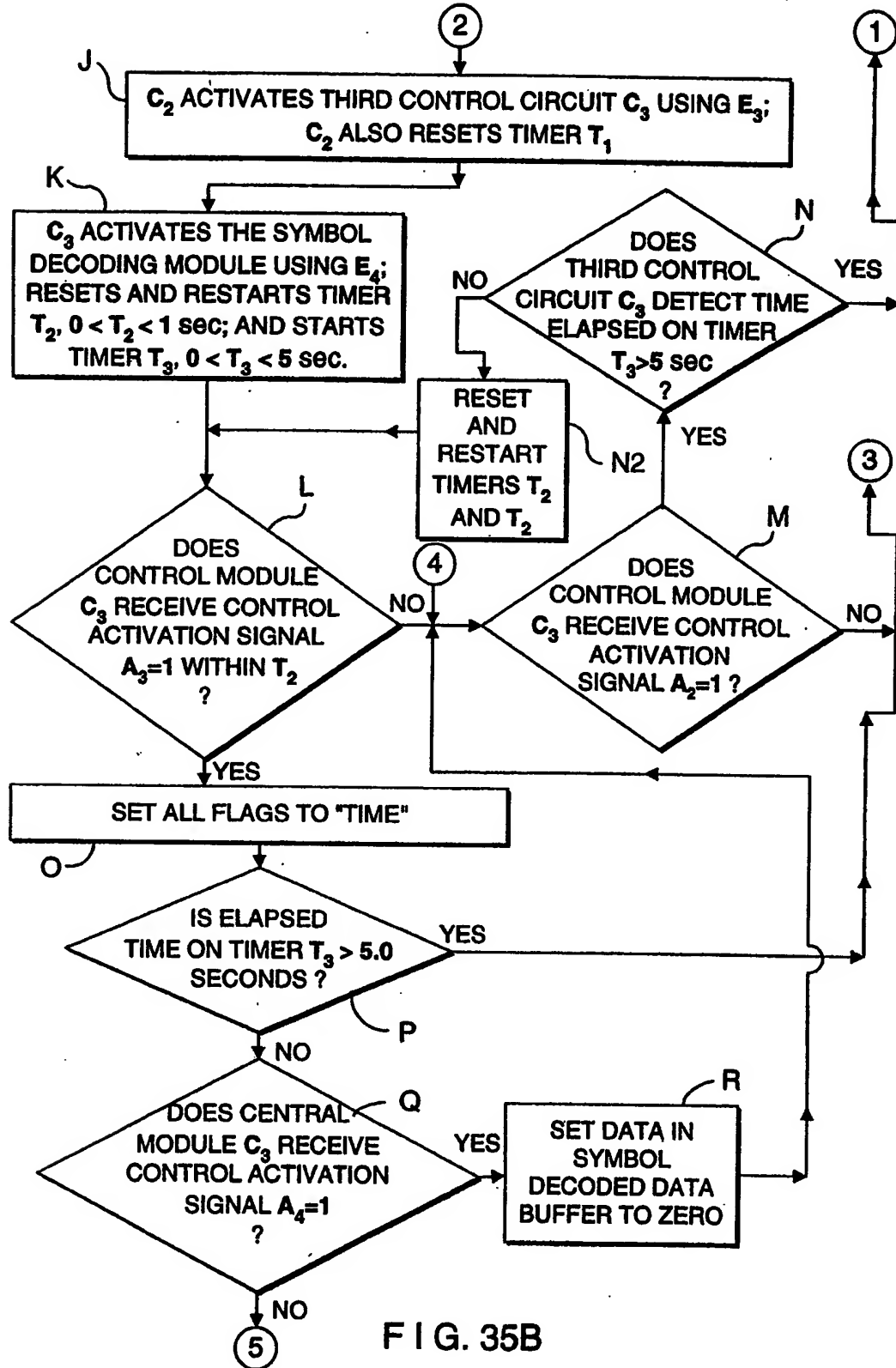


FIG. 35B

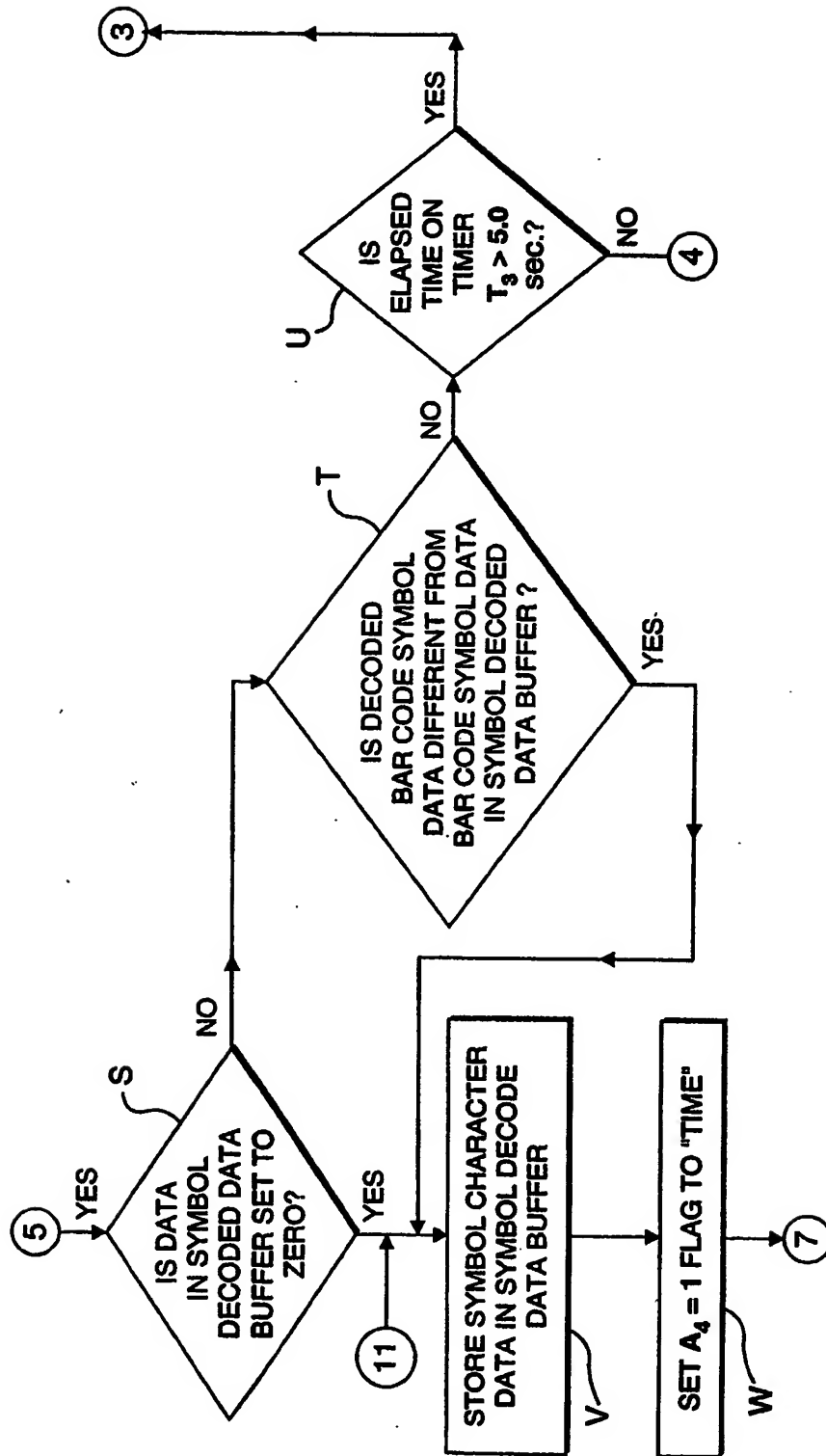


FIG. 35C

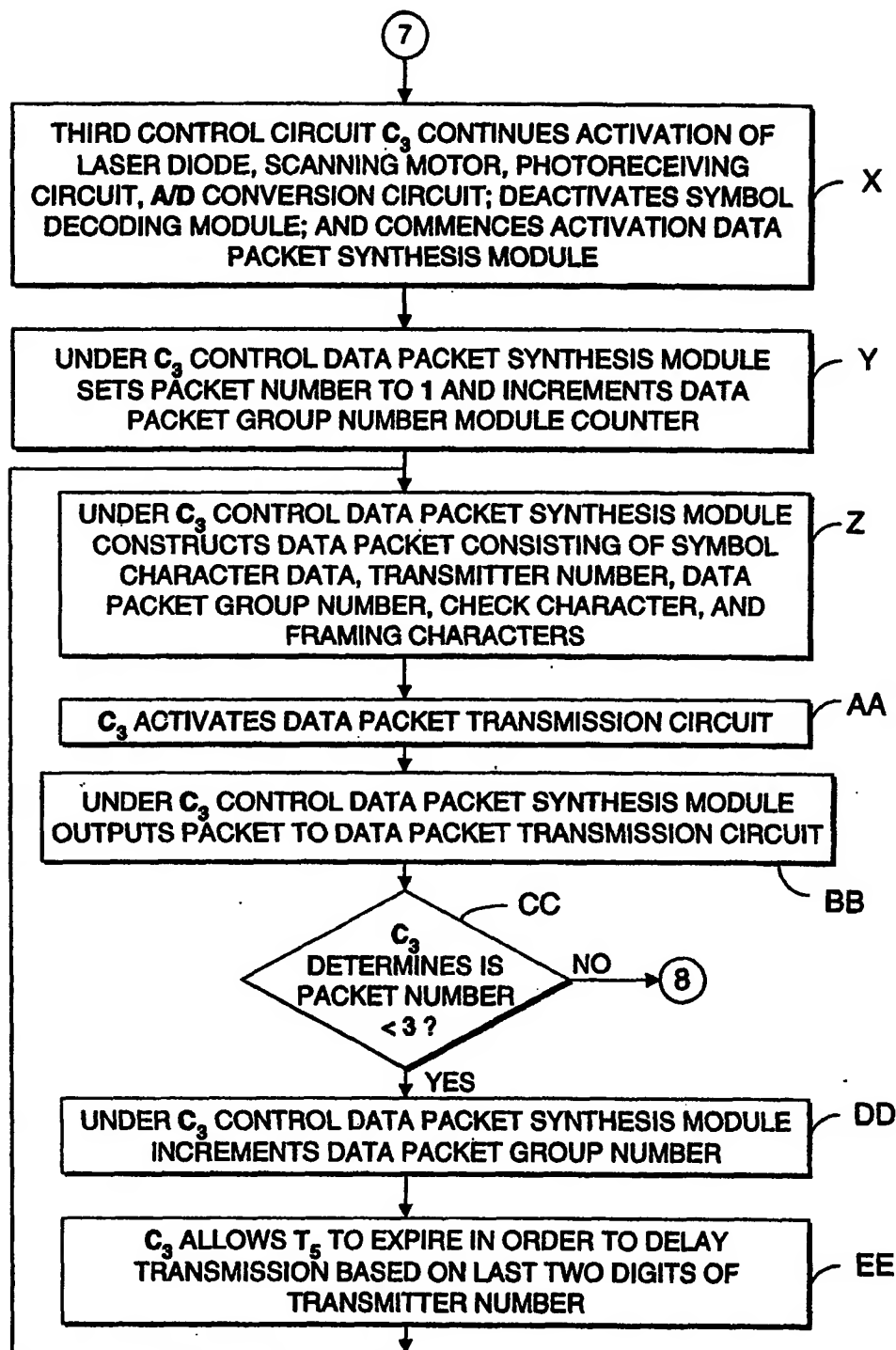


FIG. 35D

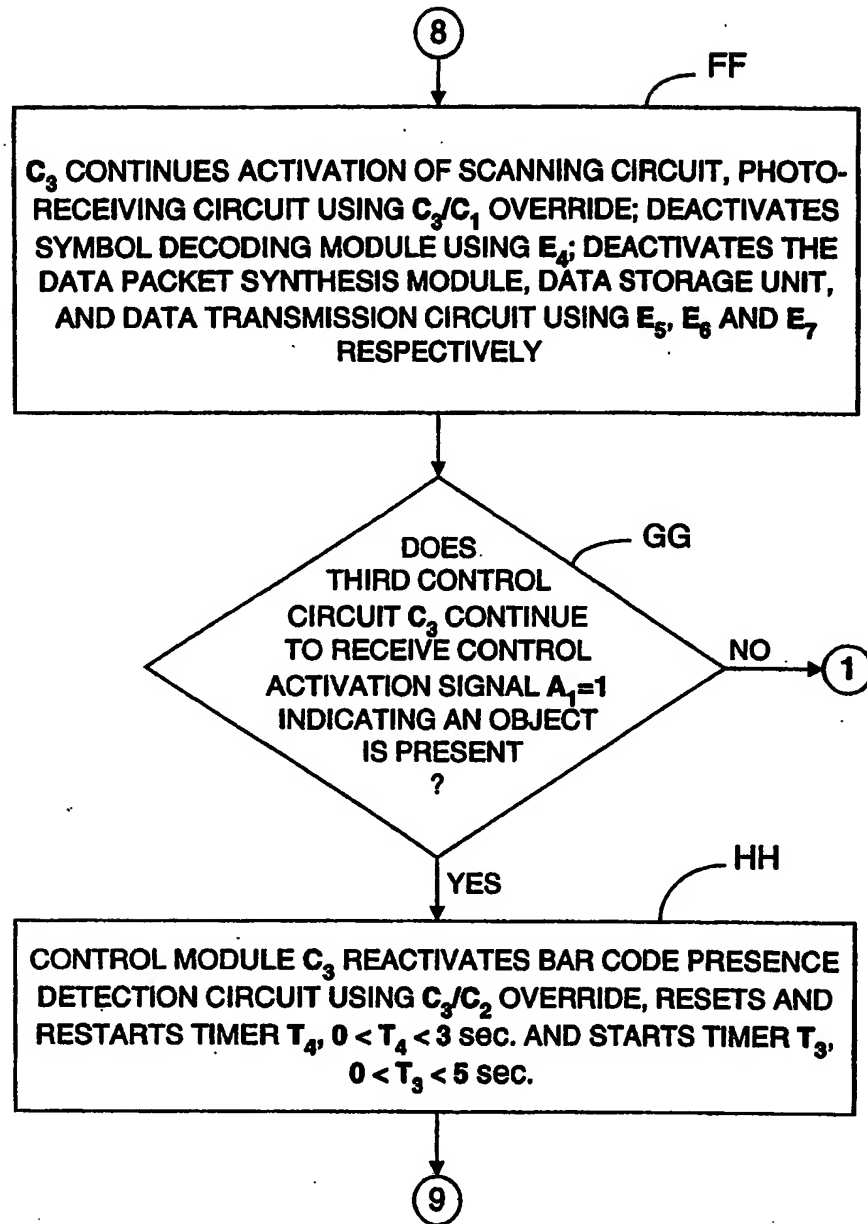


FIG. 35E

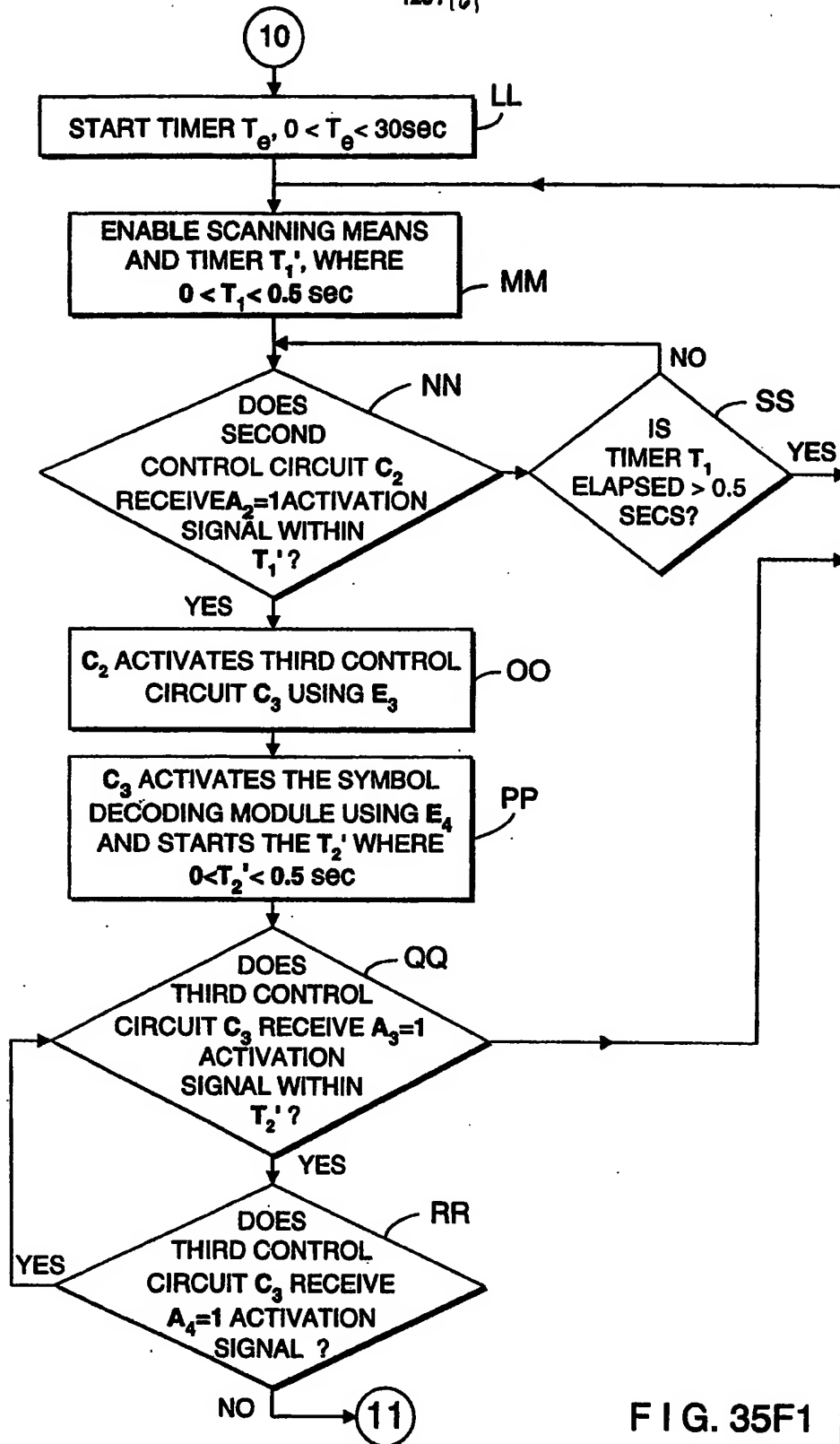
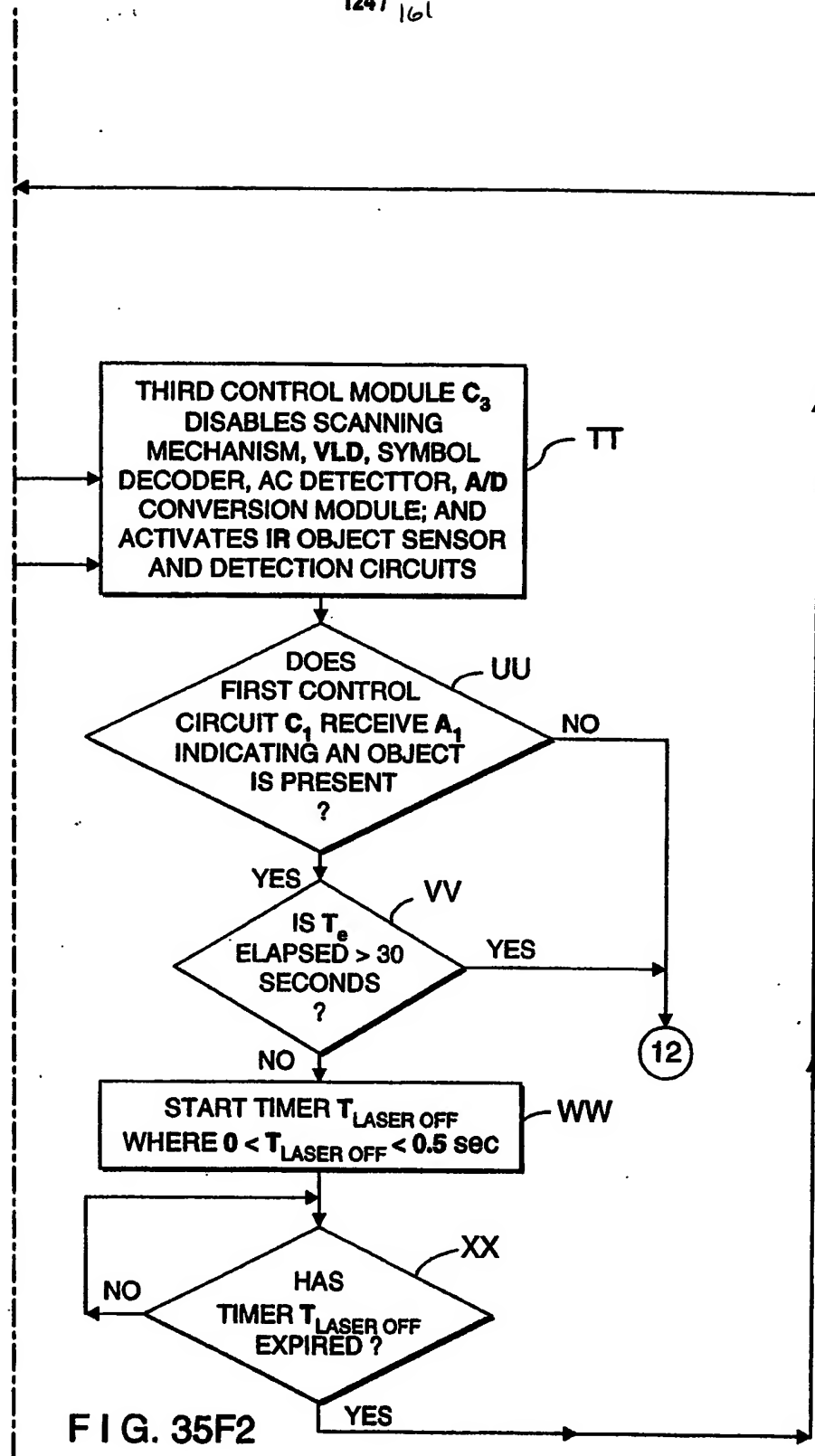
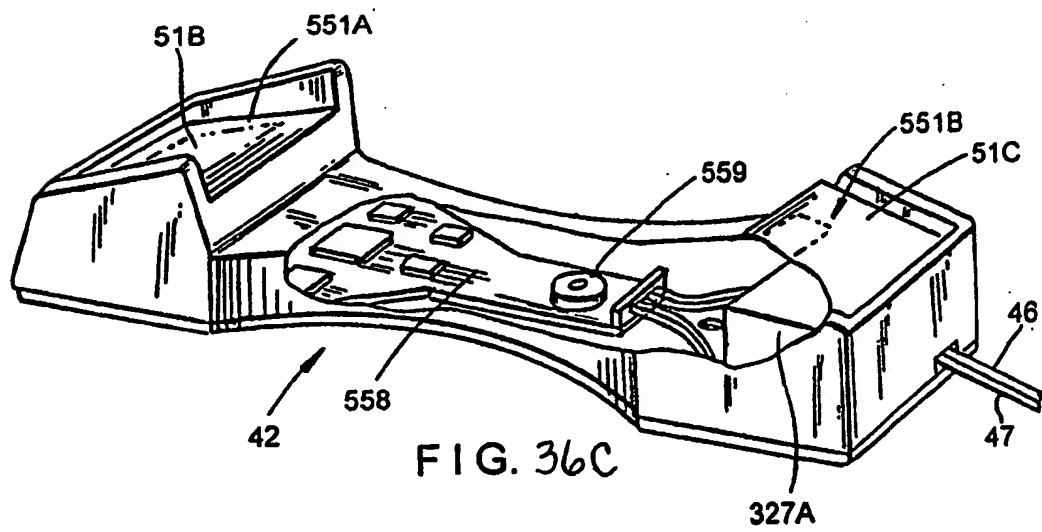
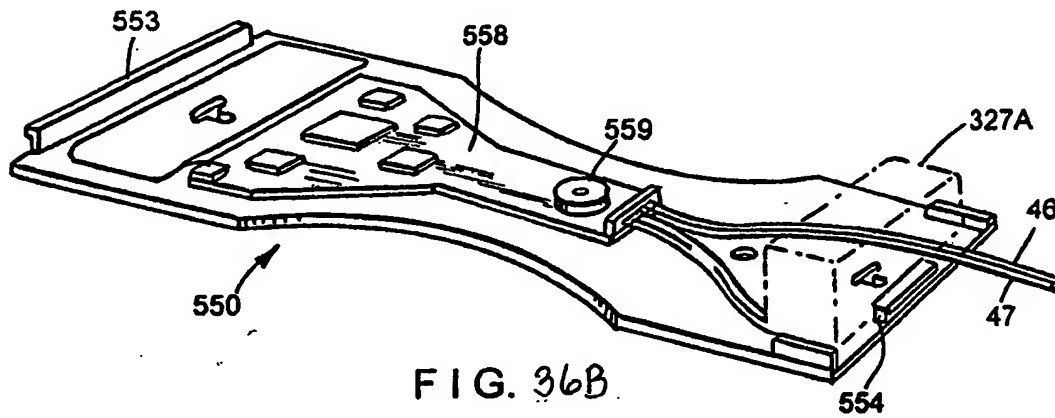
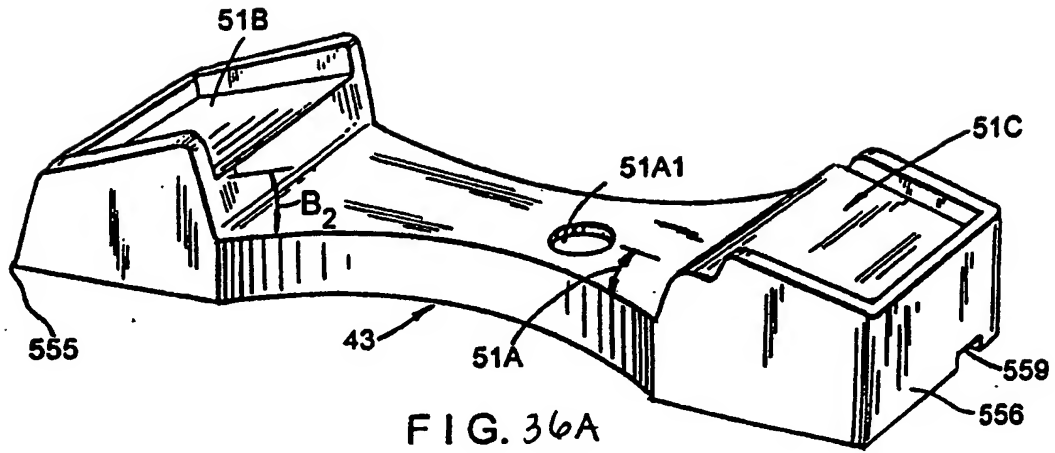
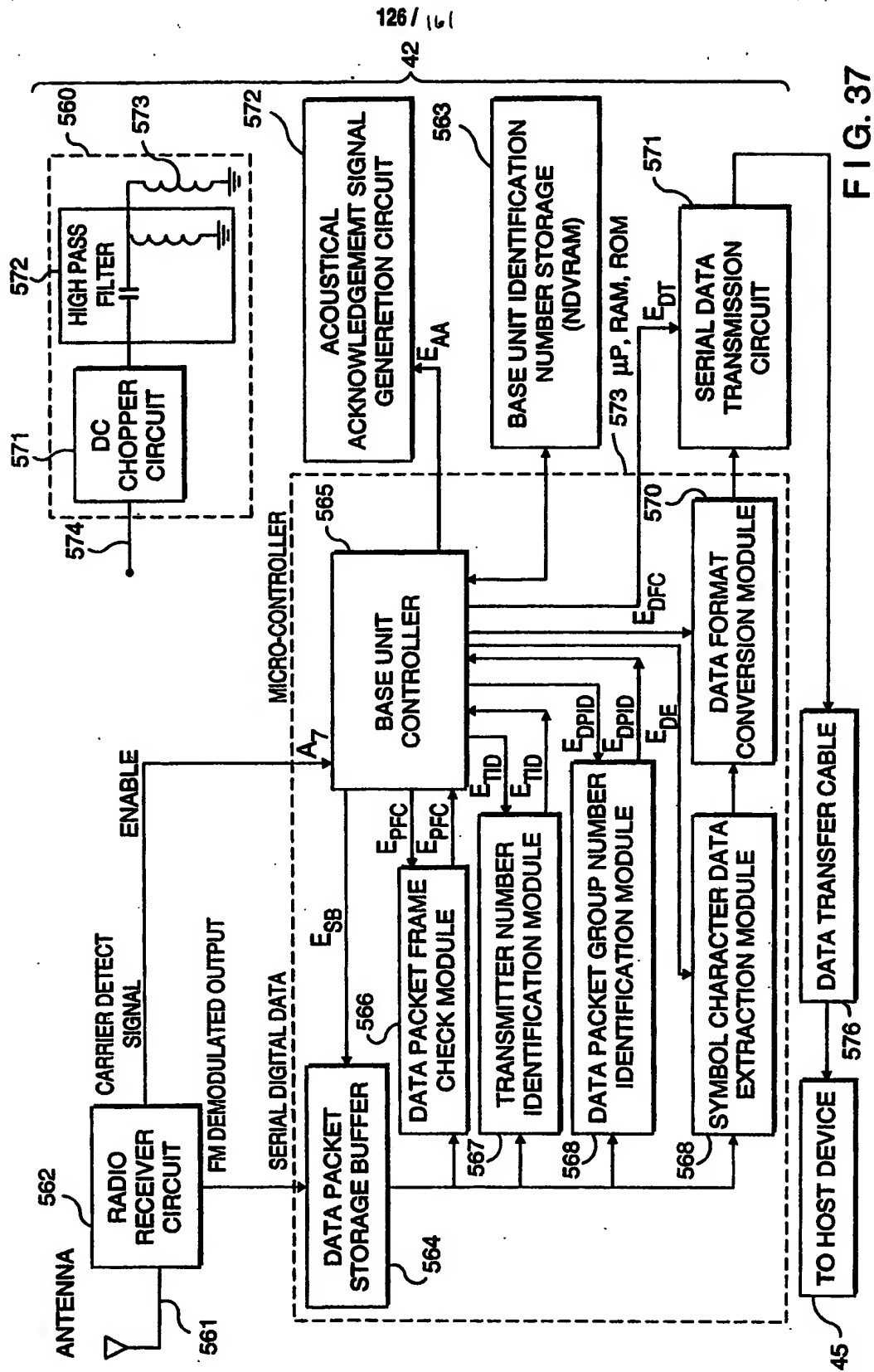


FIG. 35F1



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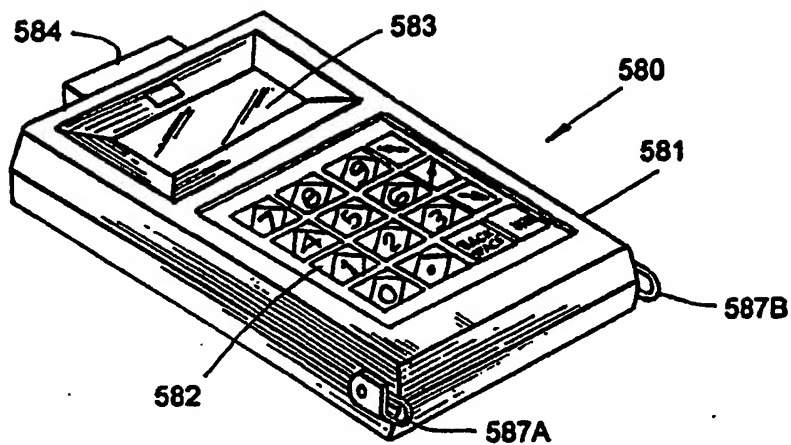


FIG. 38A

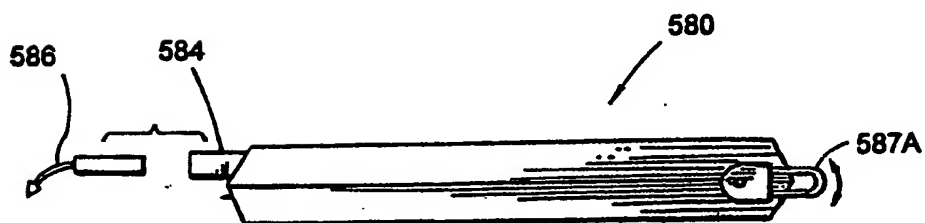


FIG. 38B

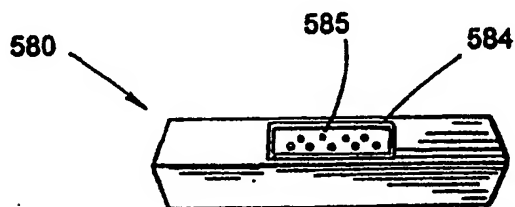


FIG. 38C

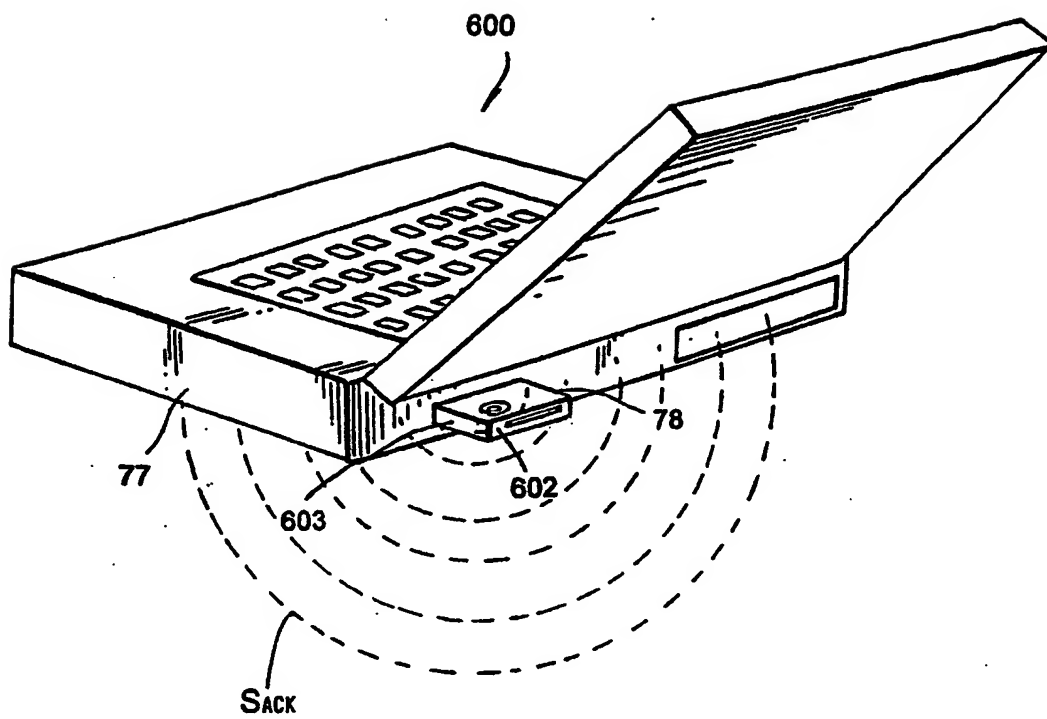


FIG. 39

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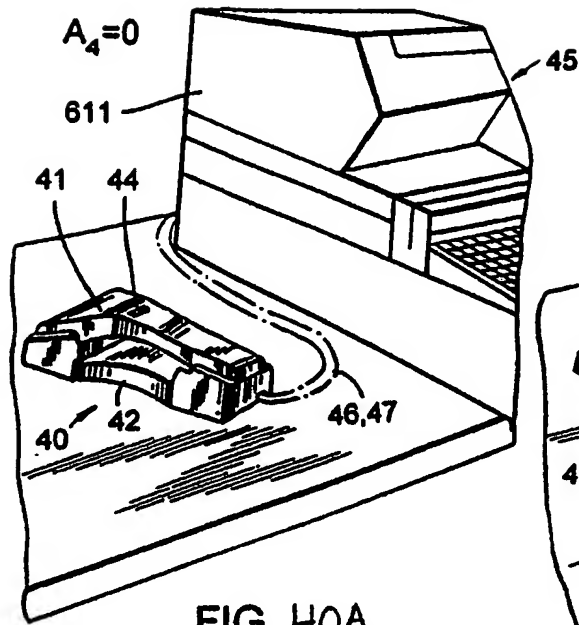


FIG. 40A

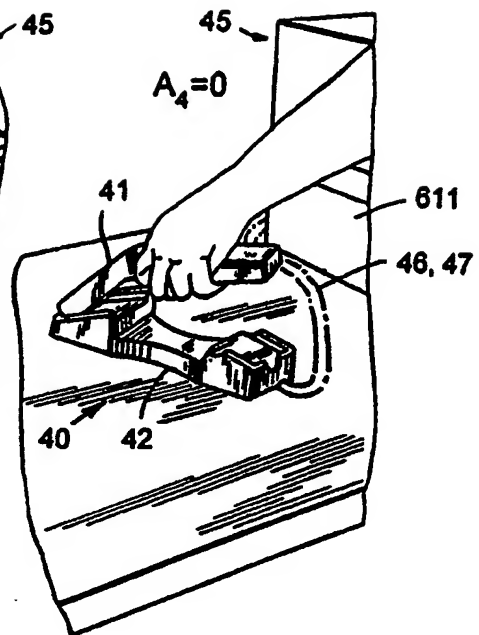


FIG. 40B

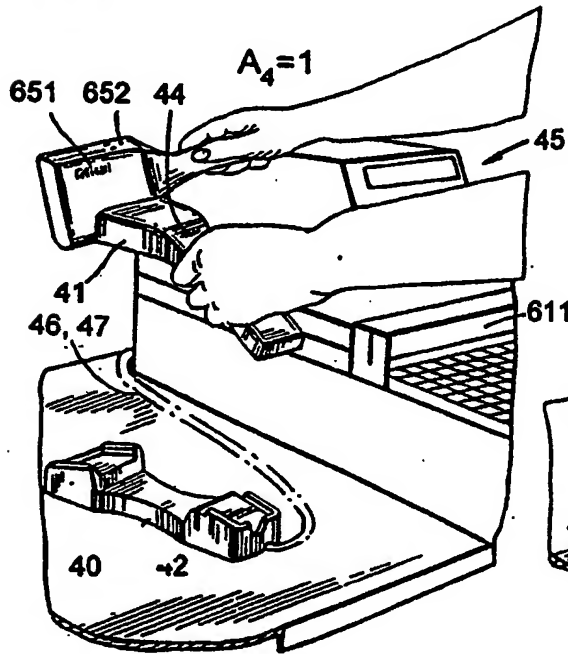


FIG. 40C

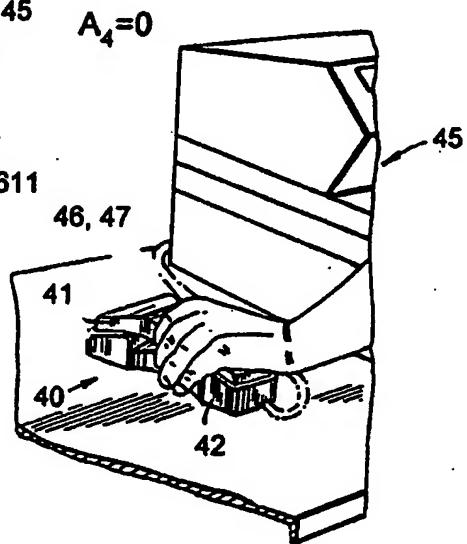


FIG. 40D

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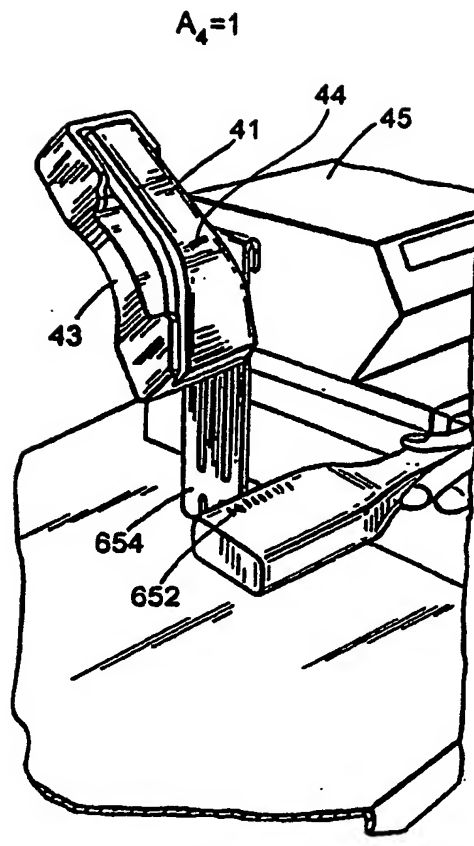


FIG. 41A

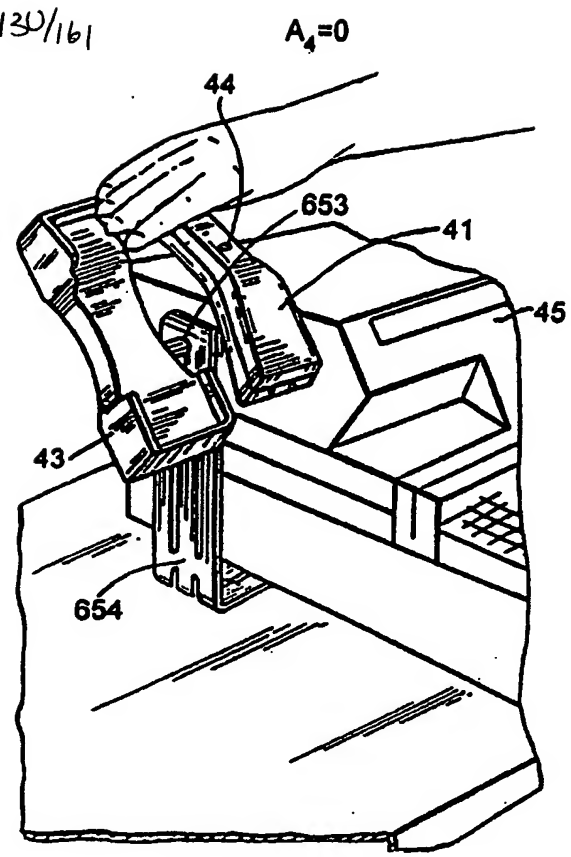


FIG. 41B

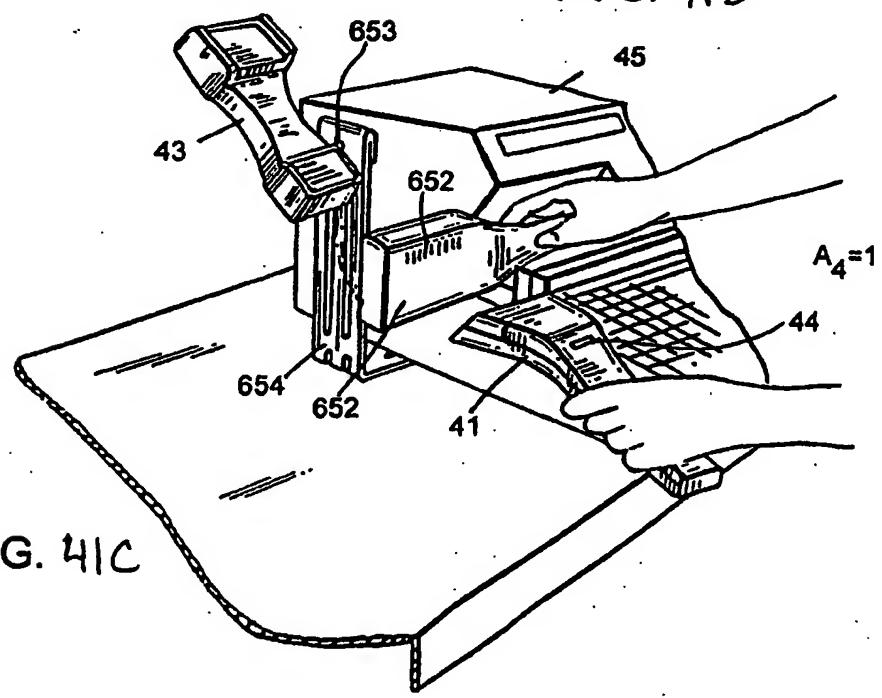


FIG. 41C

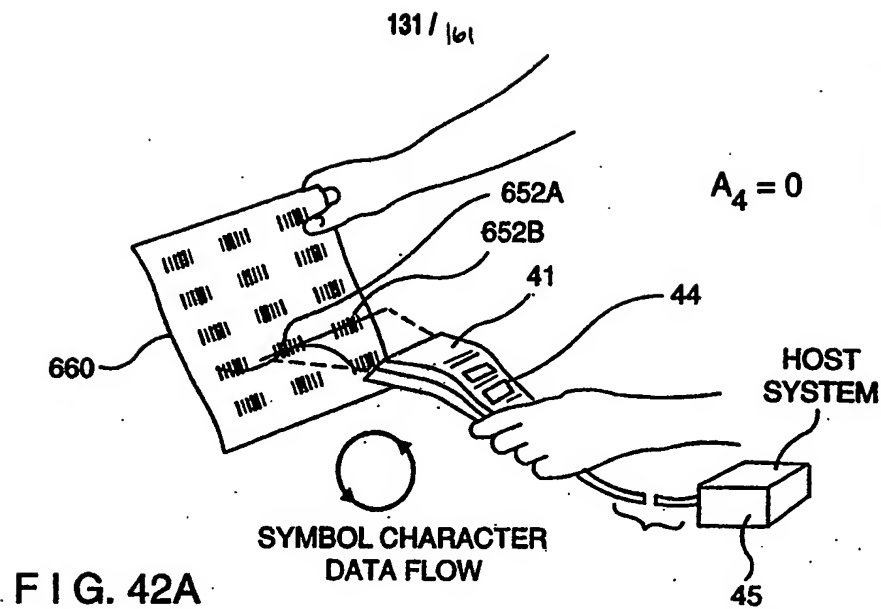


FIG. 42A

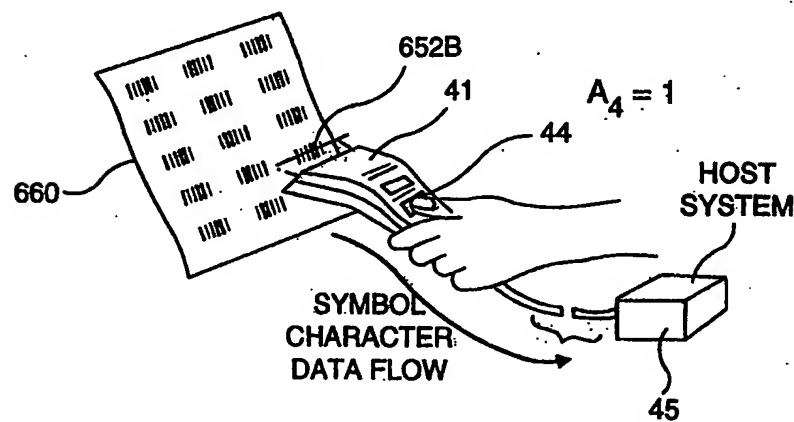
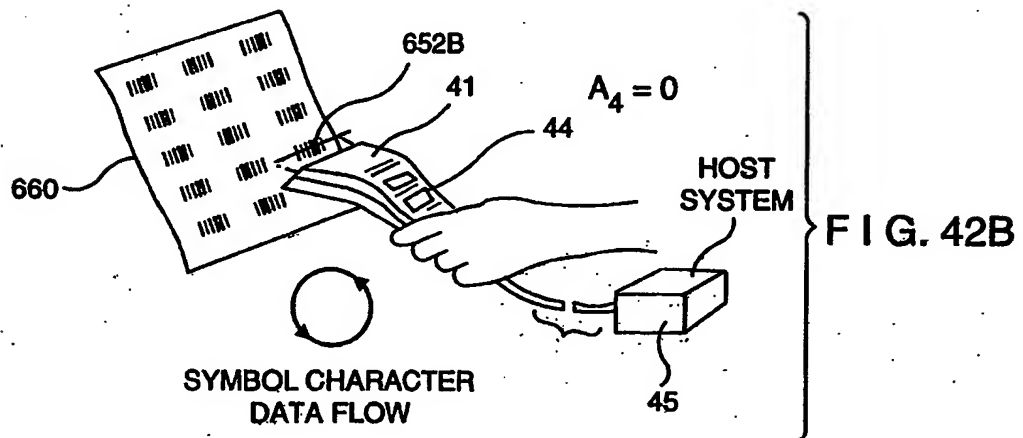
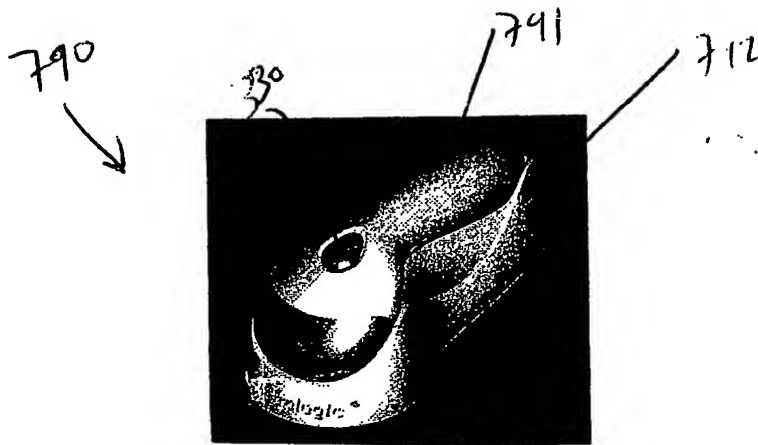


FIG. 42C

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Automatic Barcode
Reading
System with
2-WAY
RF Communication
Link

FIG. 43A



712 FIG. 43B

FIG. 43C

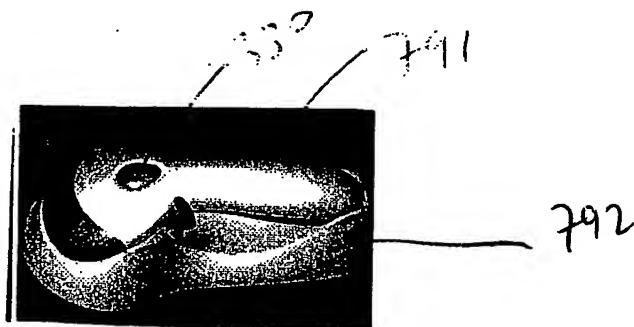


FIG. 43D

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Protracted configuration

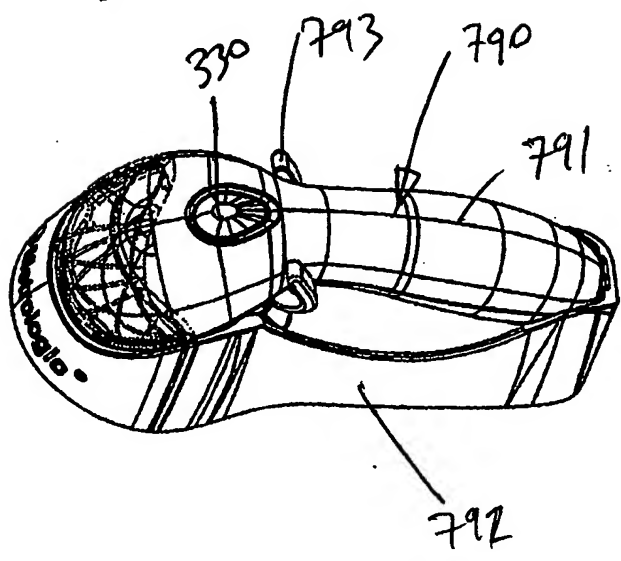


FIG. 43F

Protracted configuration

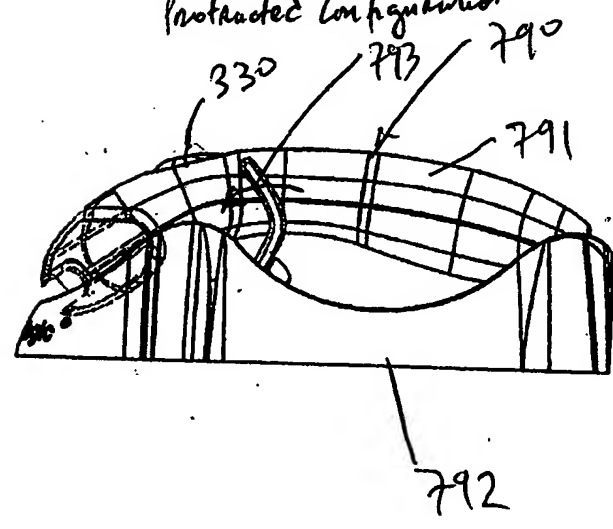


FIG. 43E

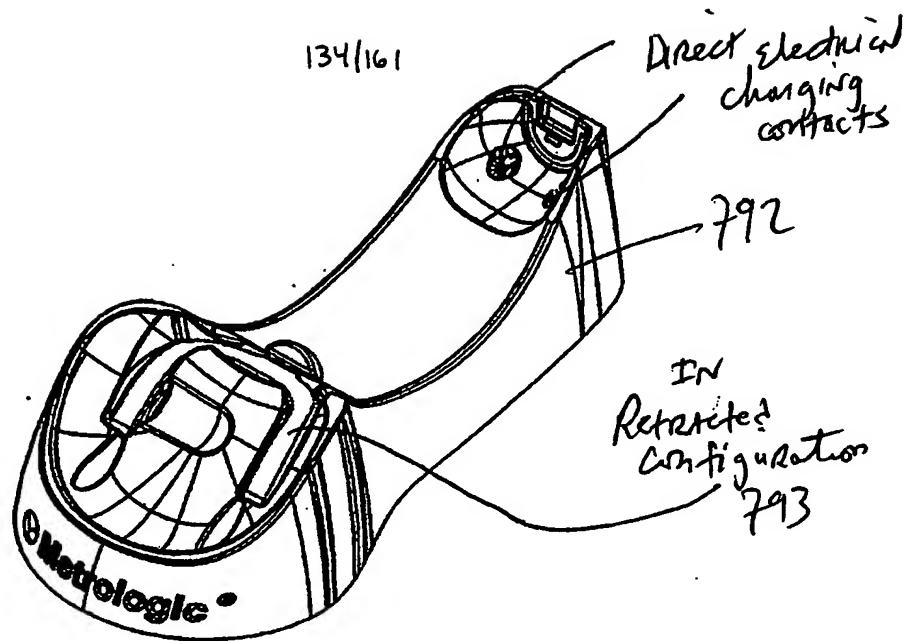


FIG. 43G

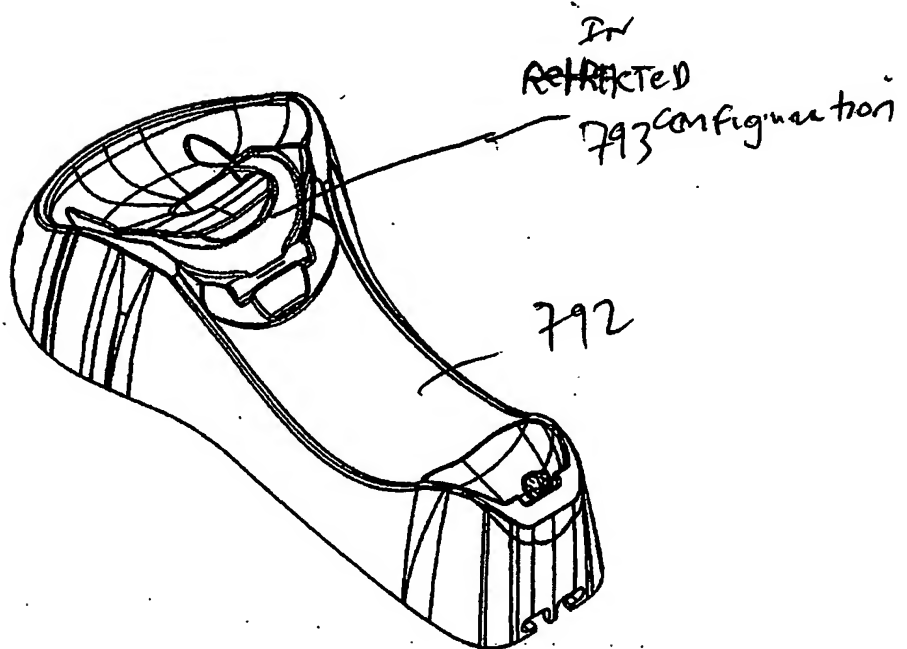


FIG. 43A

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Retracted Configuration

793



FIG. 43 I 792

Projected Configuration

793

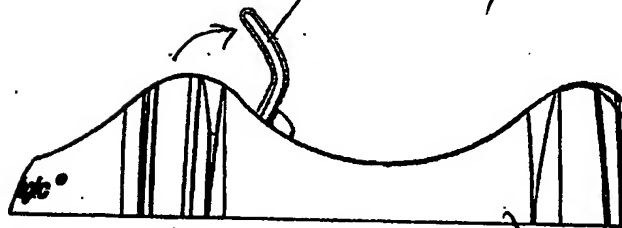


FIG. 43 J 792

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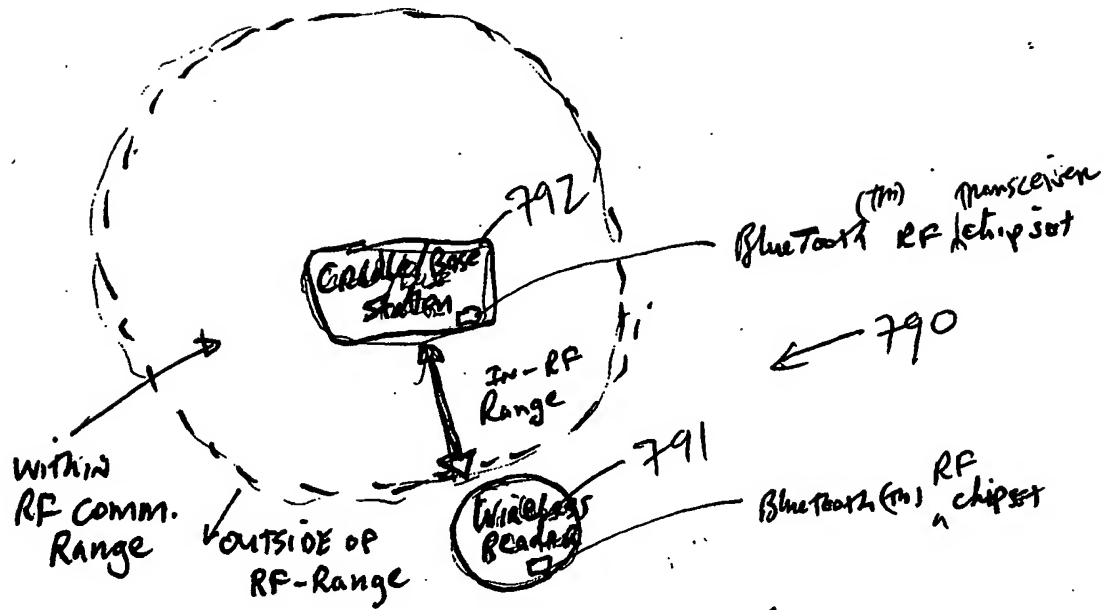


FIG. 44A1

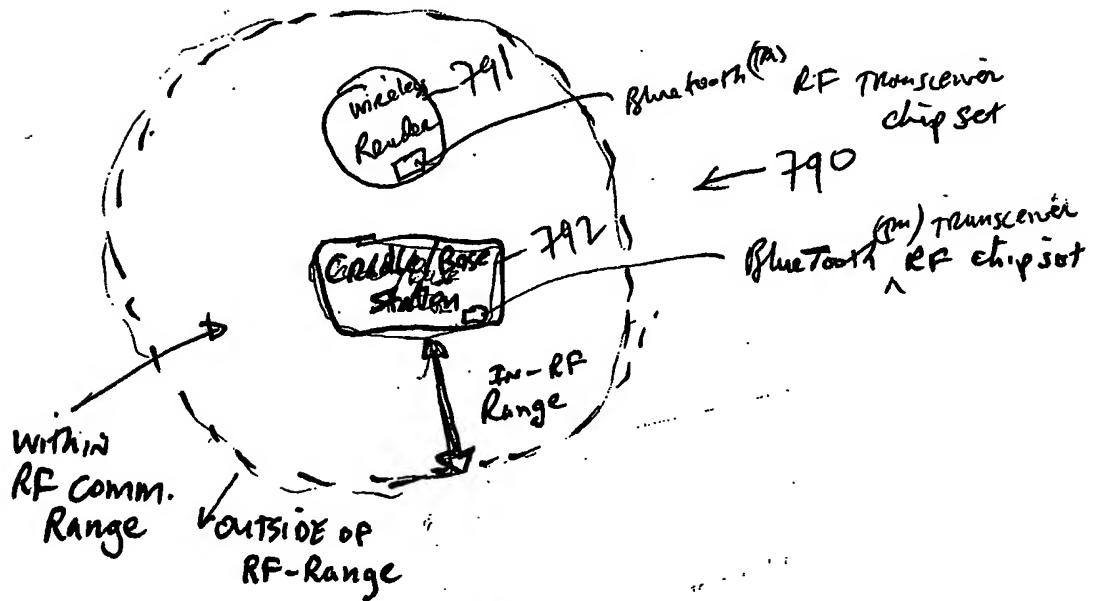


FIG. 44A2

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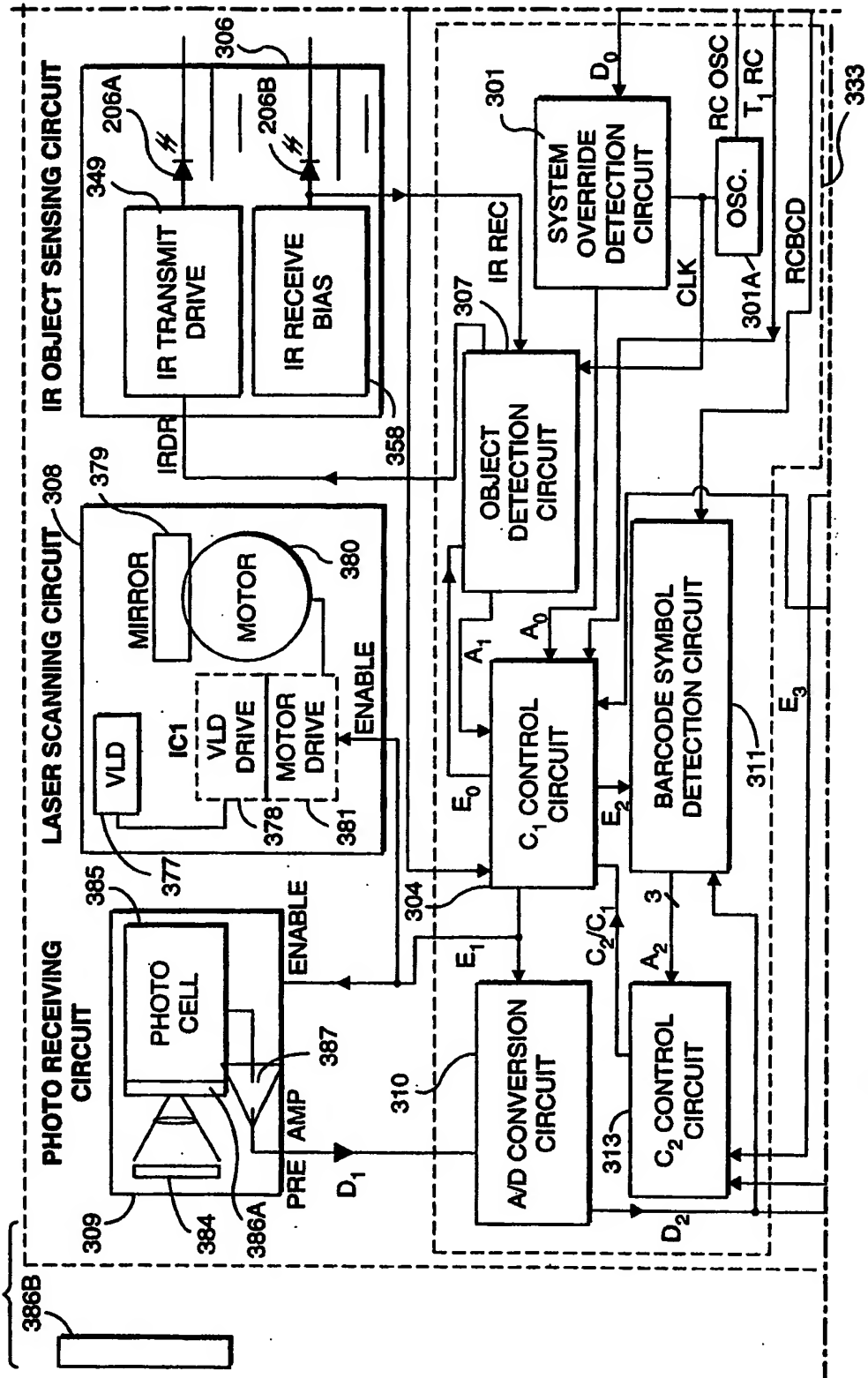
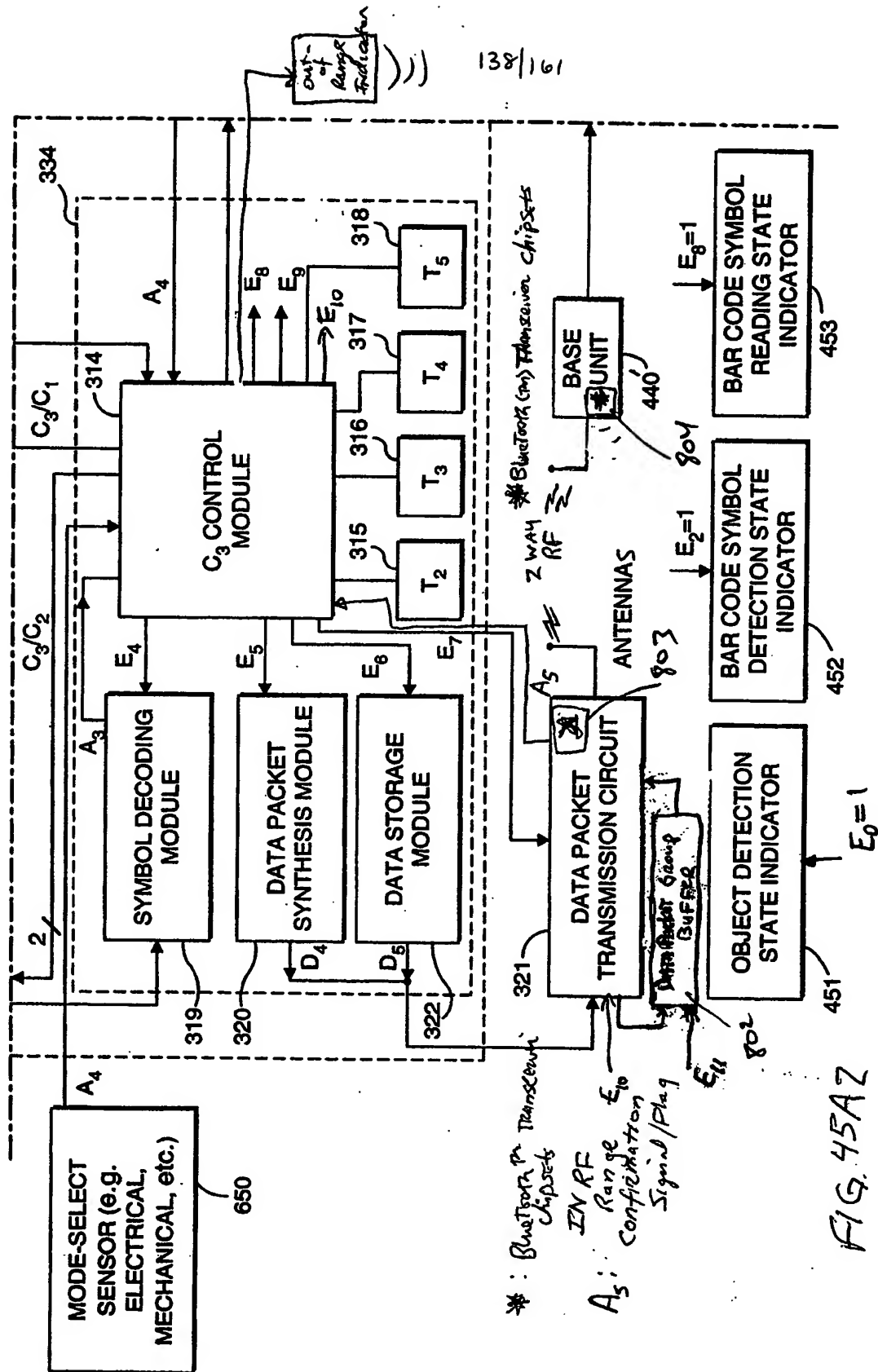
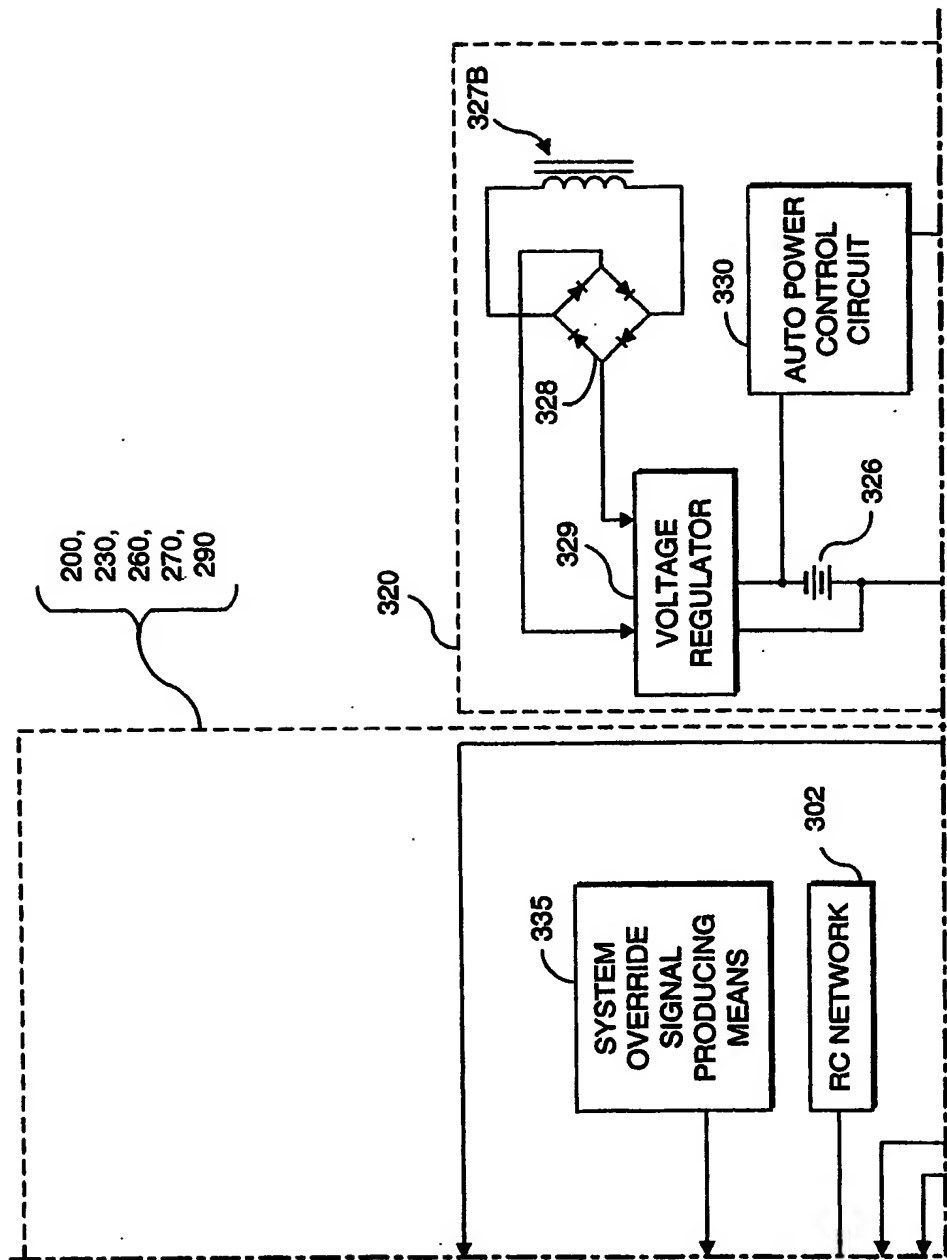


FIG 45A1

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FIG. 45A3

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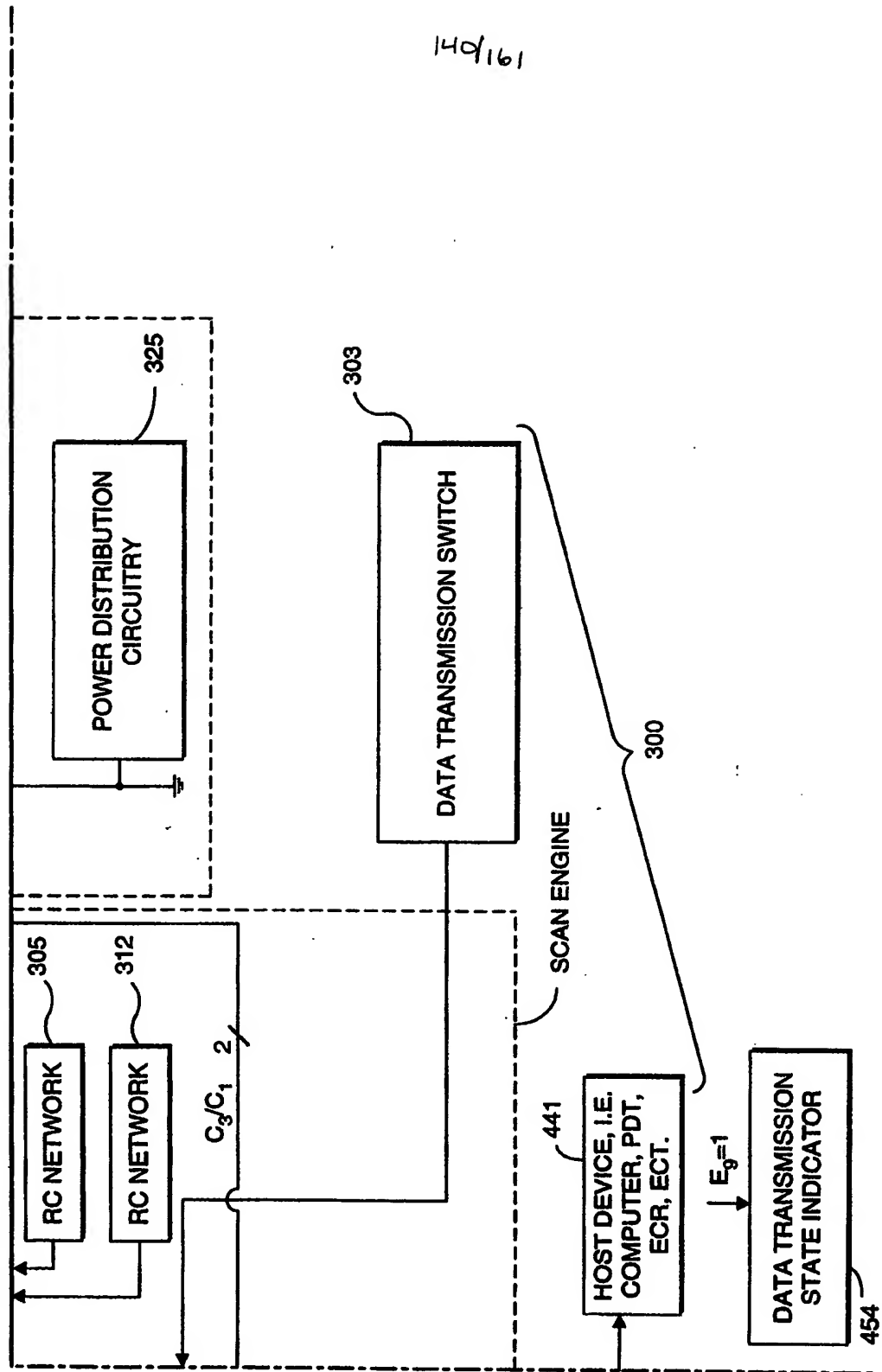


FIG. 45A4

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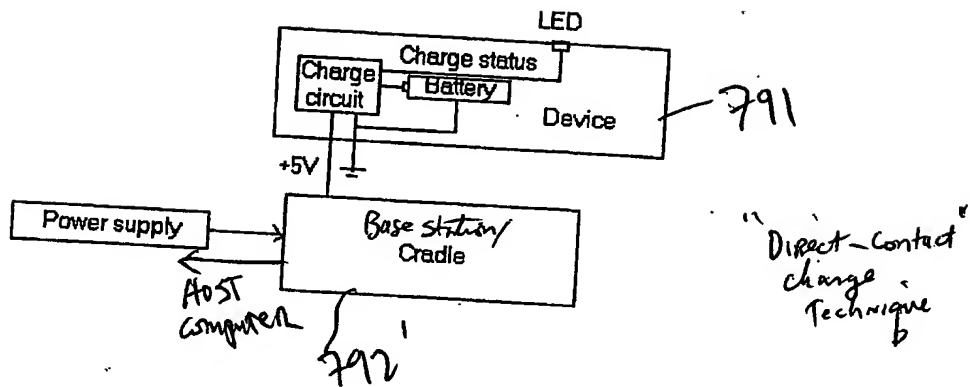


FIG. 45B

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DATA Packet
Transmission via
2-WAY RF with Automatic
RP-Range Dependent
Control

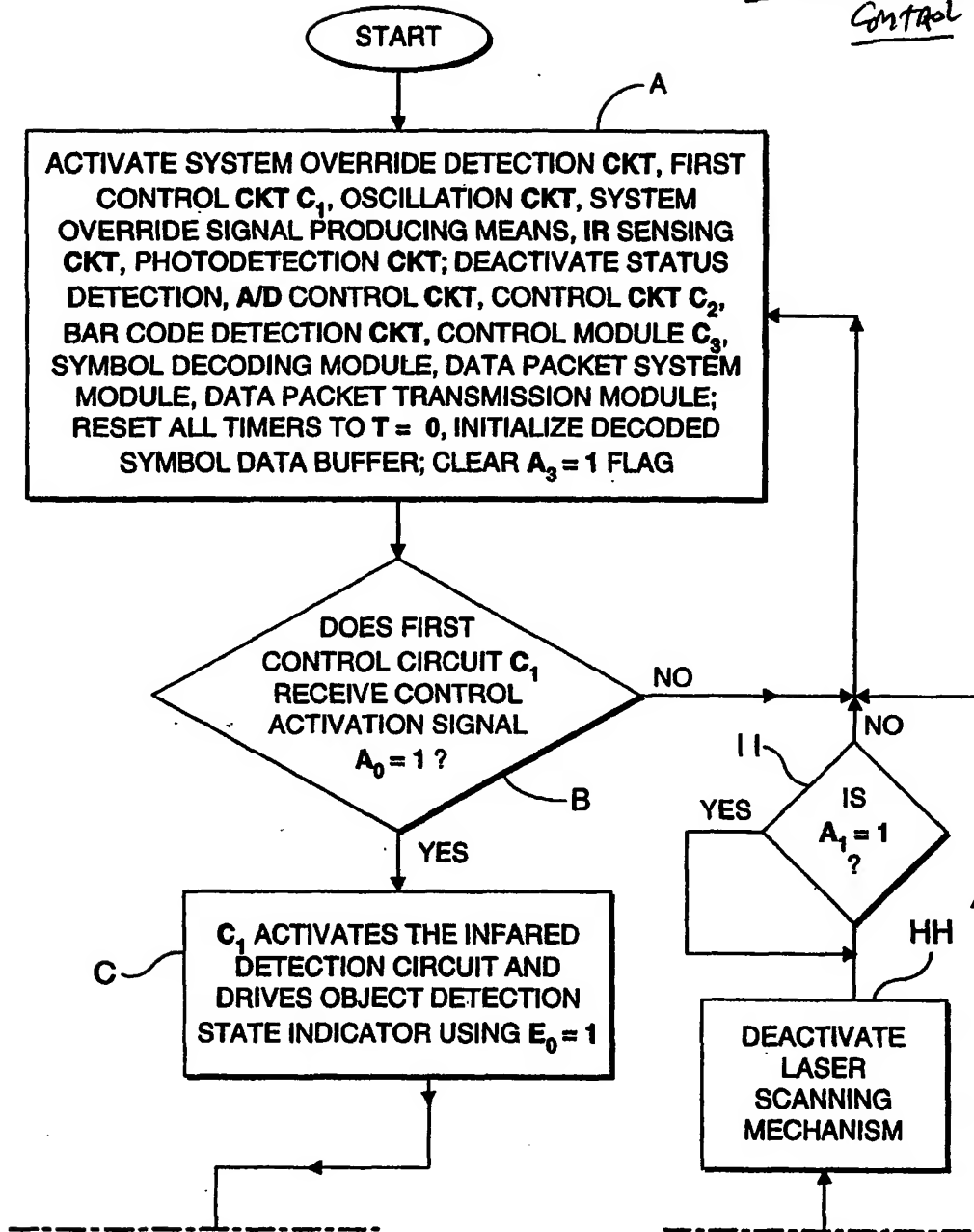


FIG. 46A1

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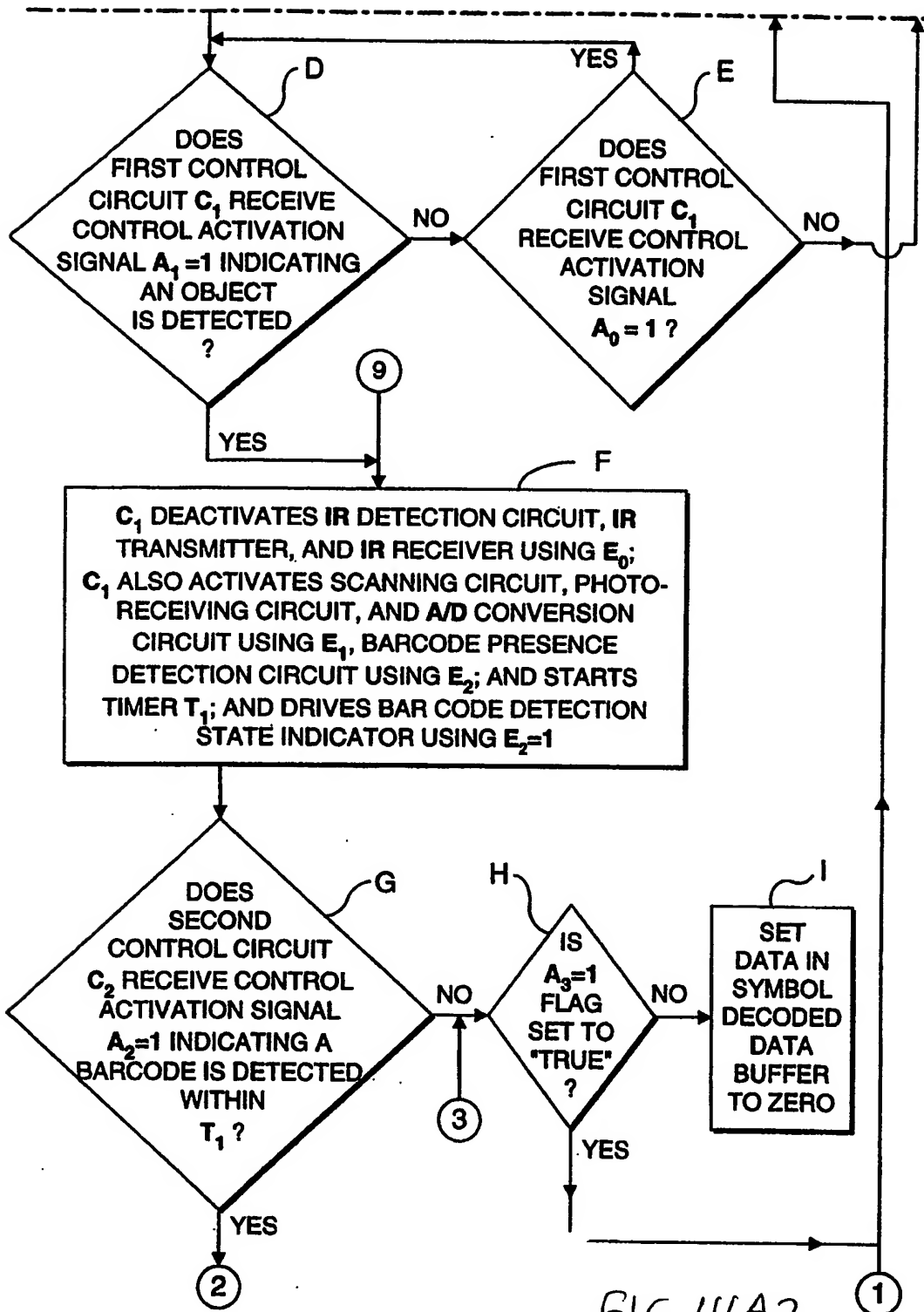
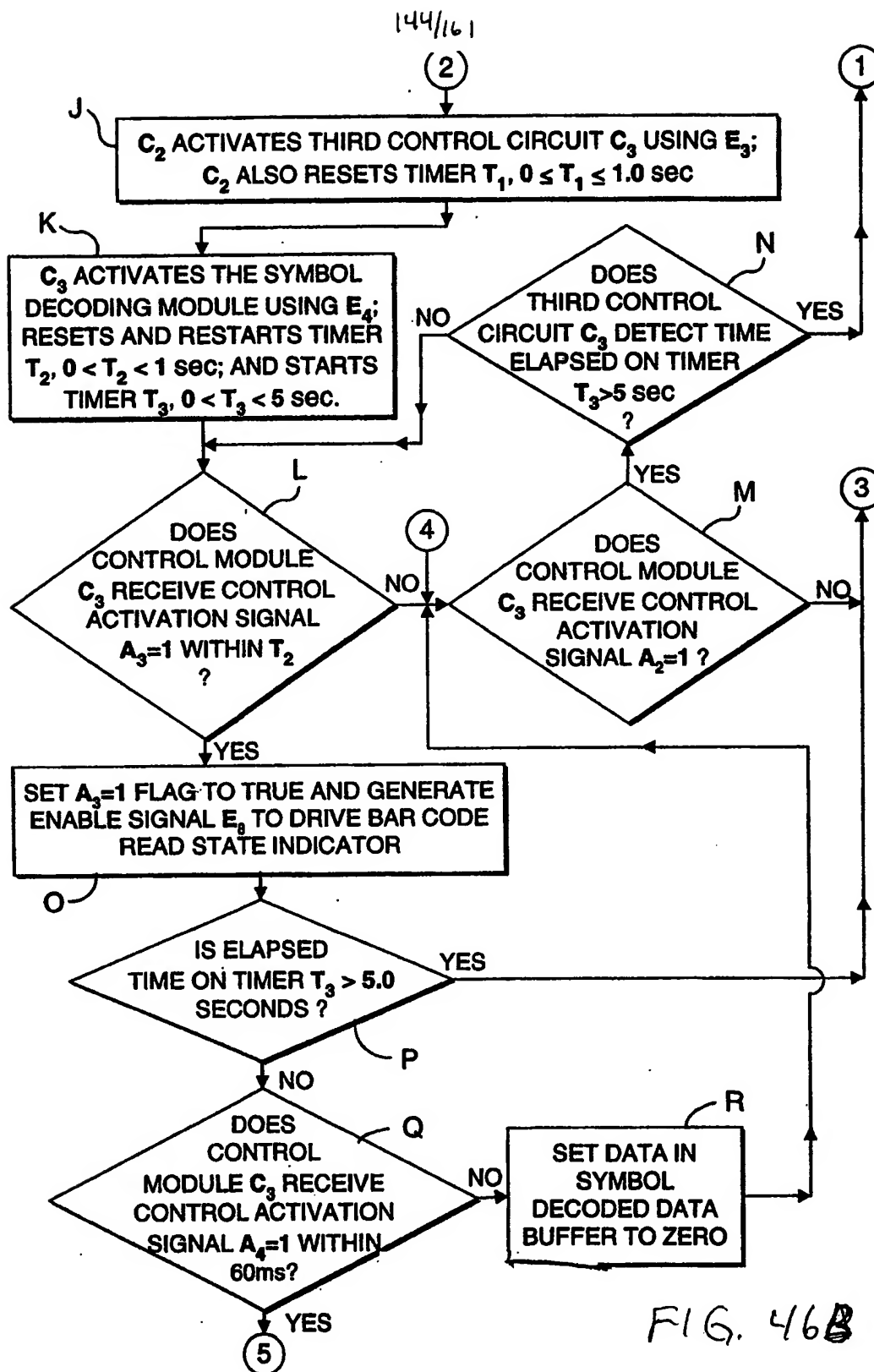


FIG 46A2



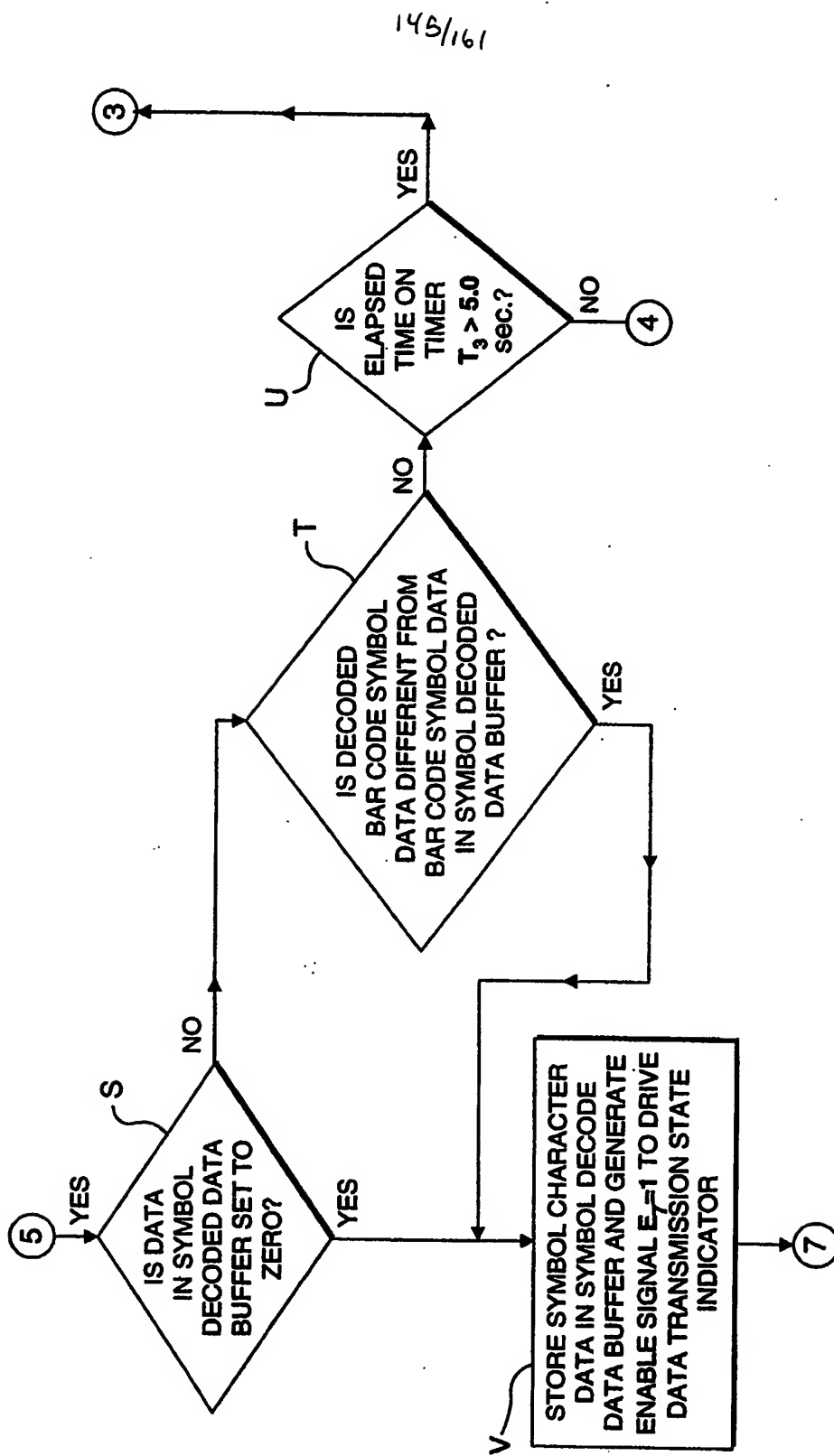


FIG. 46C1

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7

THIRD CONTROL CIRCUIT C_3 CONTINUES ACTIVATION OF LASER DIODE, SCANNING MOTOR, PHOTORECEIVING CIRCUIT, A/D CONVERSION CIRCUIT; DEACTIVATES SYMBOL DECODING MODULE; AND COMMENCES ACTIVATION DATA PACKET SYNTHESIS MODULE

UNDER C_3 CONTROL, DATA PACKET SYNTHESIS MODULE CONSTRUCTS DATA PACKET CONSISTING OF SYMBOL CHARACTER DATA, TRANSMITTER NUMBER, DATA PACKET GROUP NUMBER, CHECK CHARACTER AND FRAMING CHARACTERS

IS IN-RF RANGE CONFIRMATION Signal $A_5=1$?

NO

YES

NO

ARE DATA PACKET Group(S) STORED IN DATA PACKET GROUP BUFFER?

YES

YES

C_3 Control Module Generates Enable Signal $E_{11}=1$ Reloading Buffered Data Packet Group(S) into Data Packet Transmission Circuit

Control module C_3 Generates Enable Signal $E_{10}=1$ loading currently Synthesized Data packet Group into Data Packet Transmission Circuit

11

FIG. 46C2

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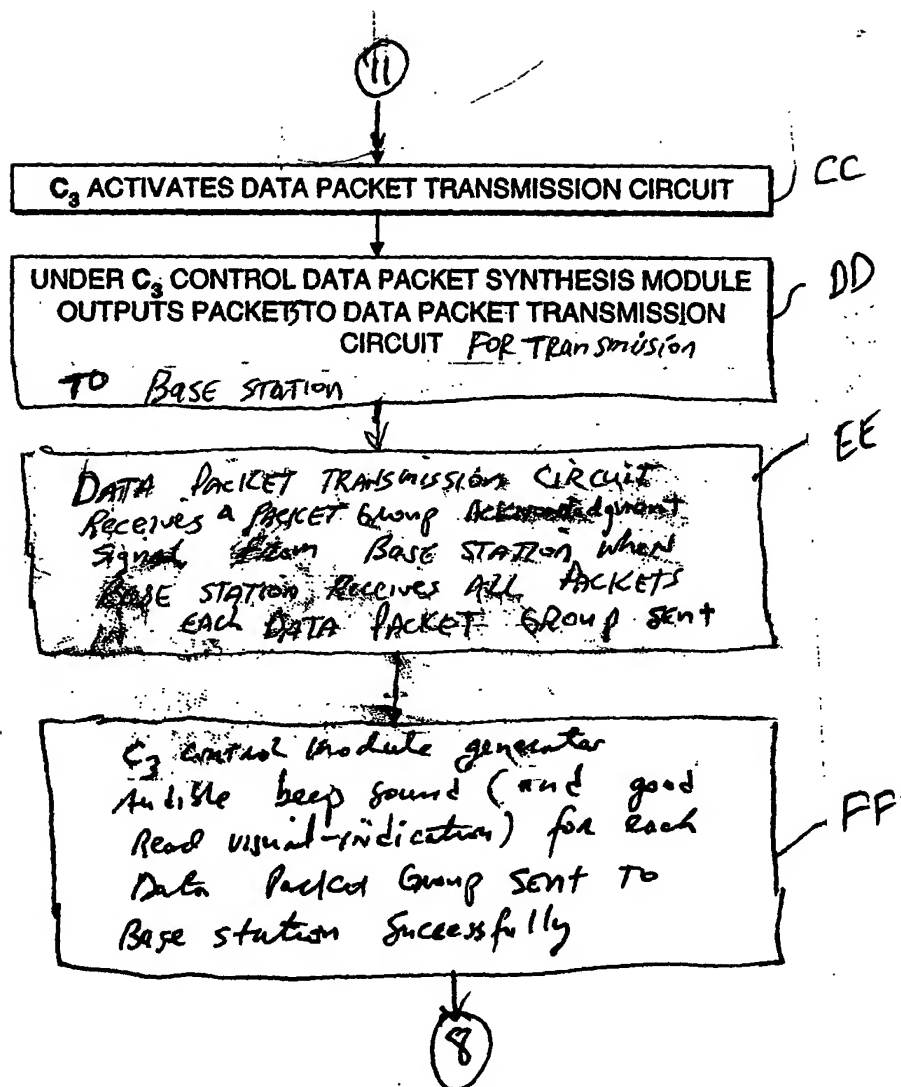


FIG. 46 C3

1481161

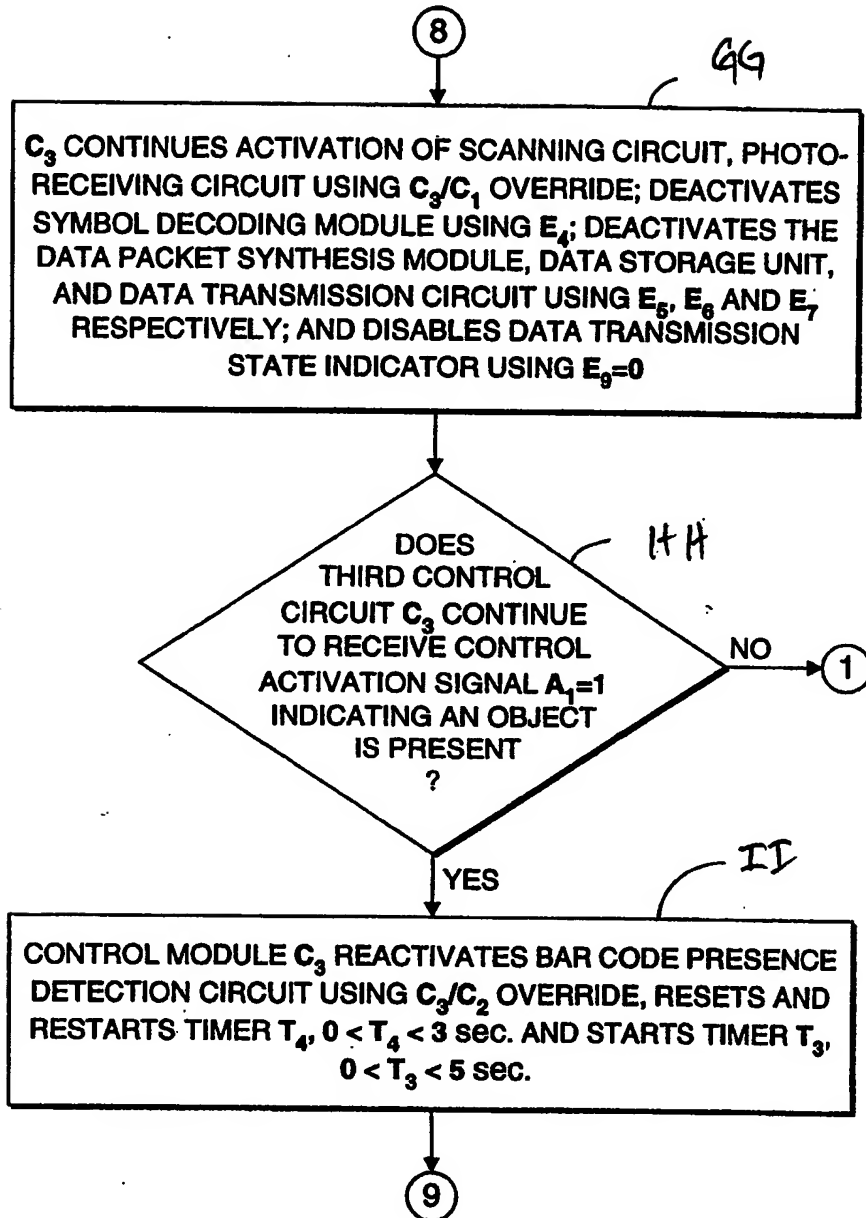


FIG 46 C4

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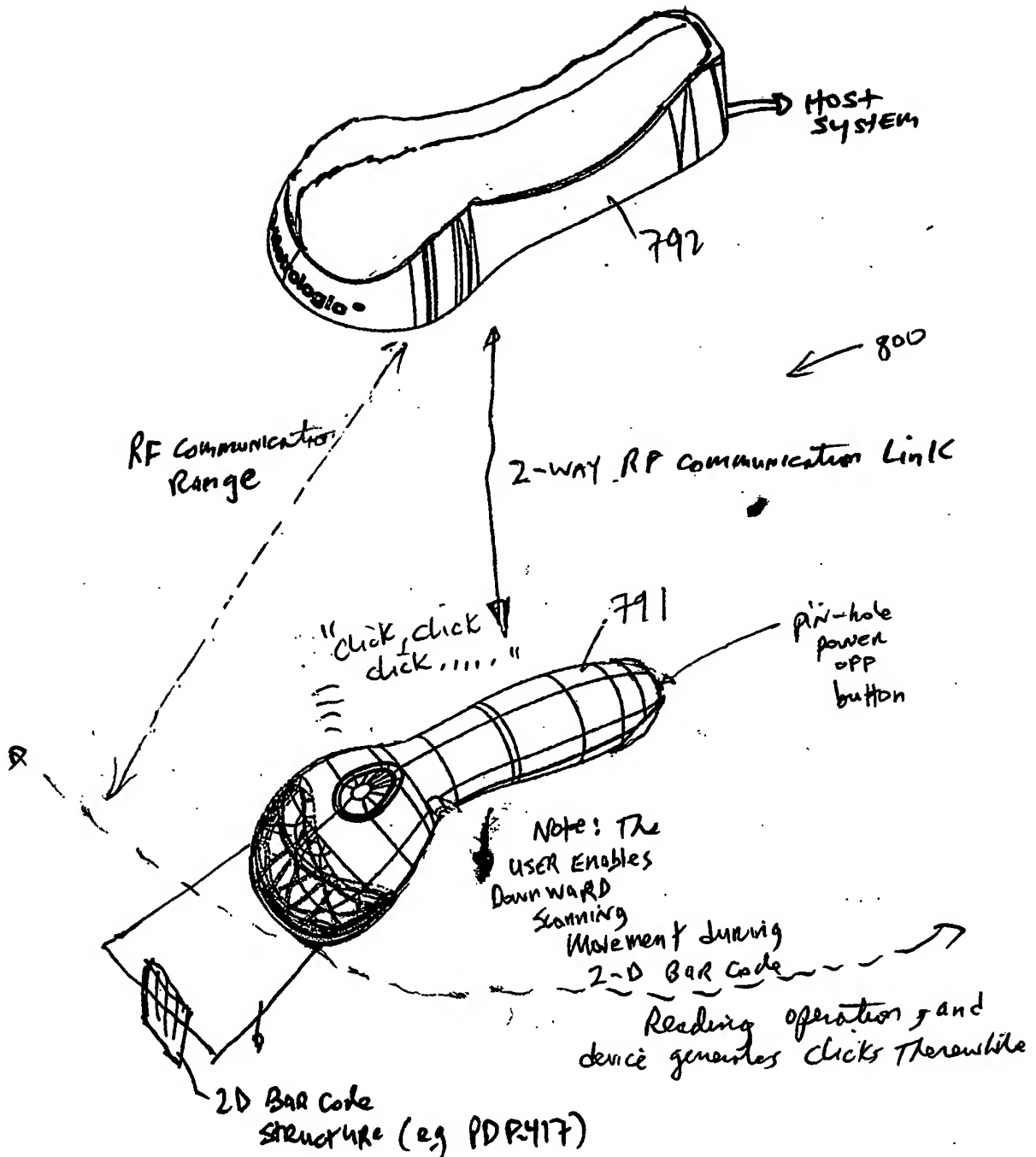


FIG. 47

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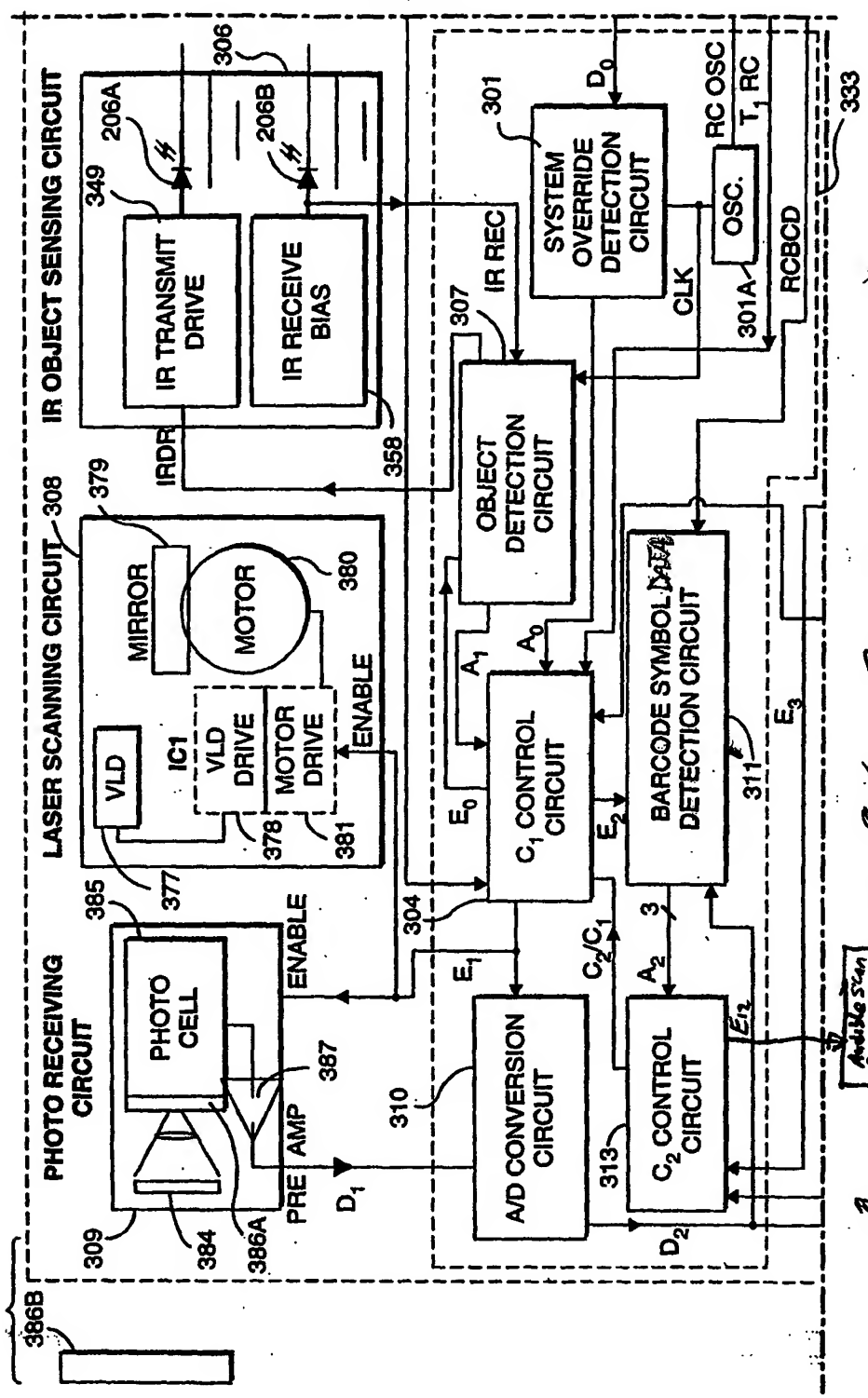
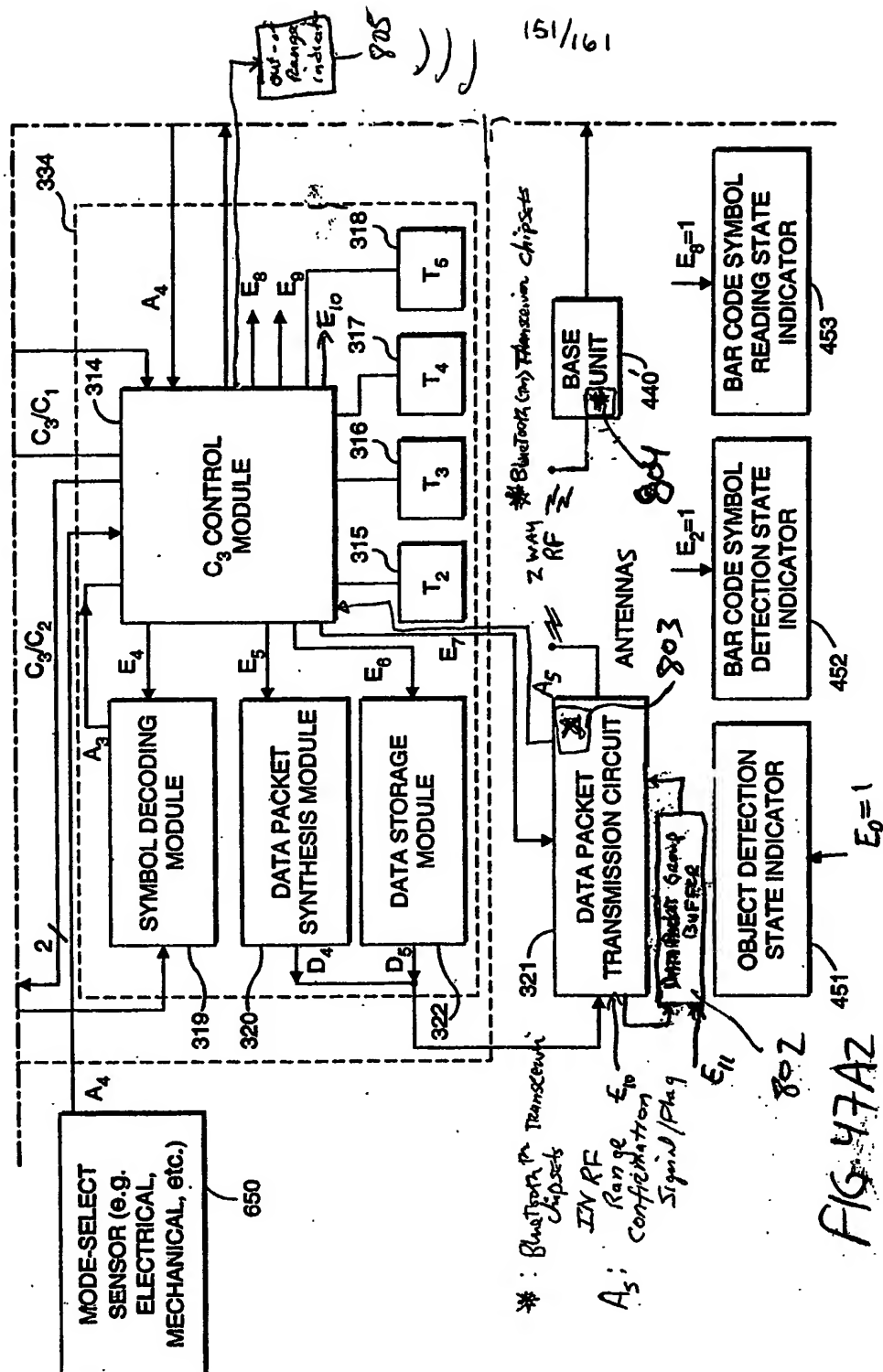


FIG. 47A1

806 (Ago-electric Transducer)

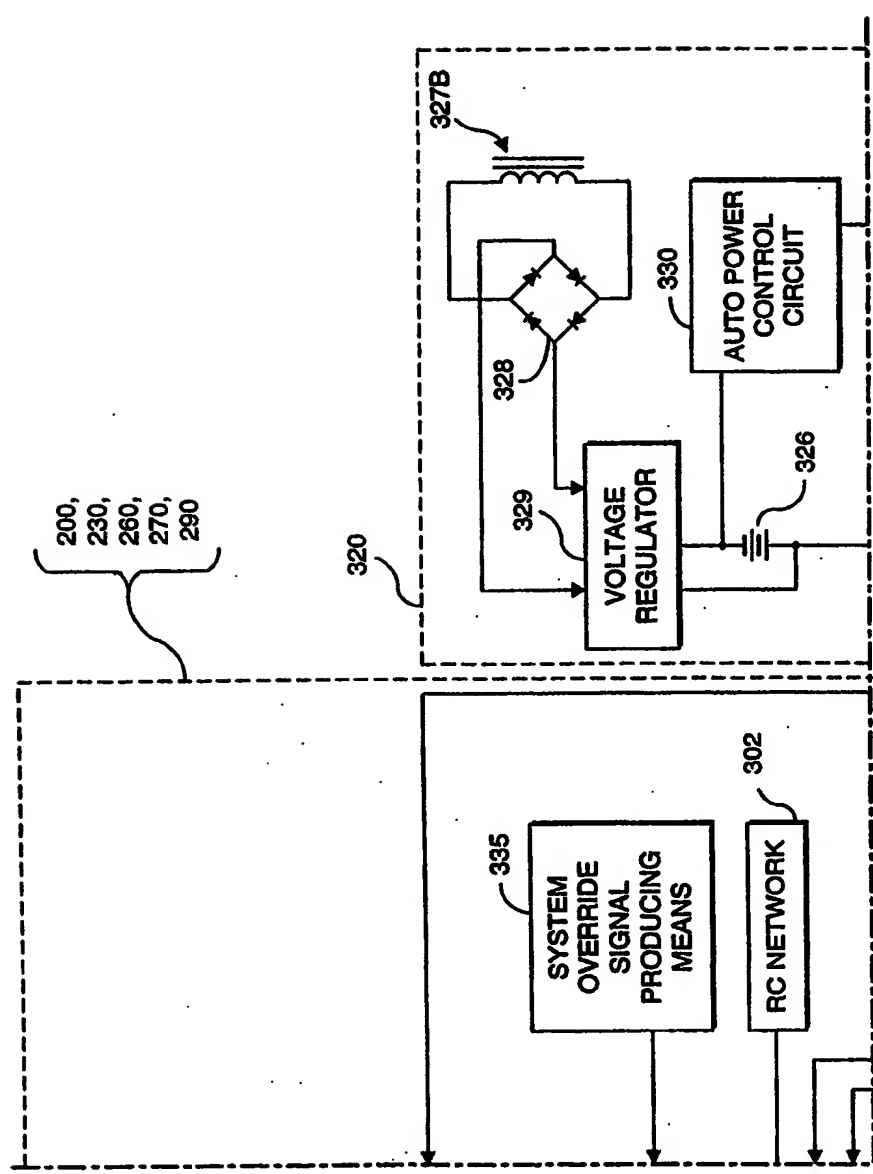
Barcode Scan Data Capture Buffer Transducer

800

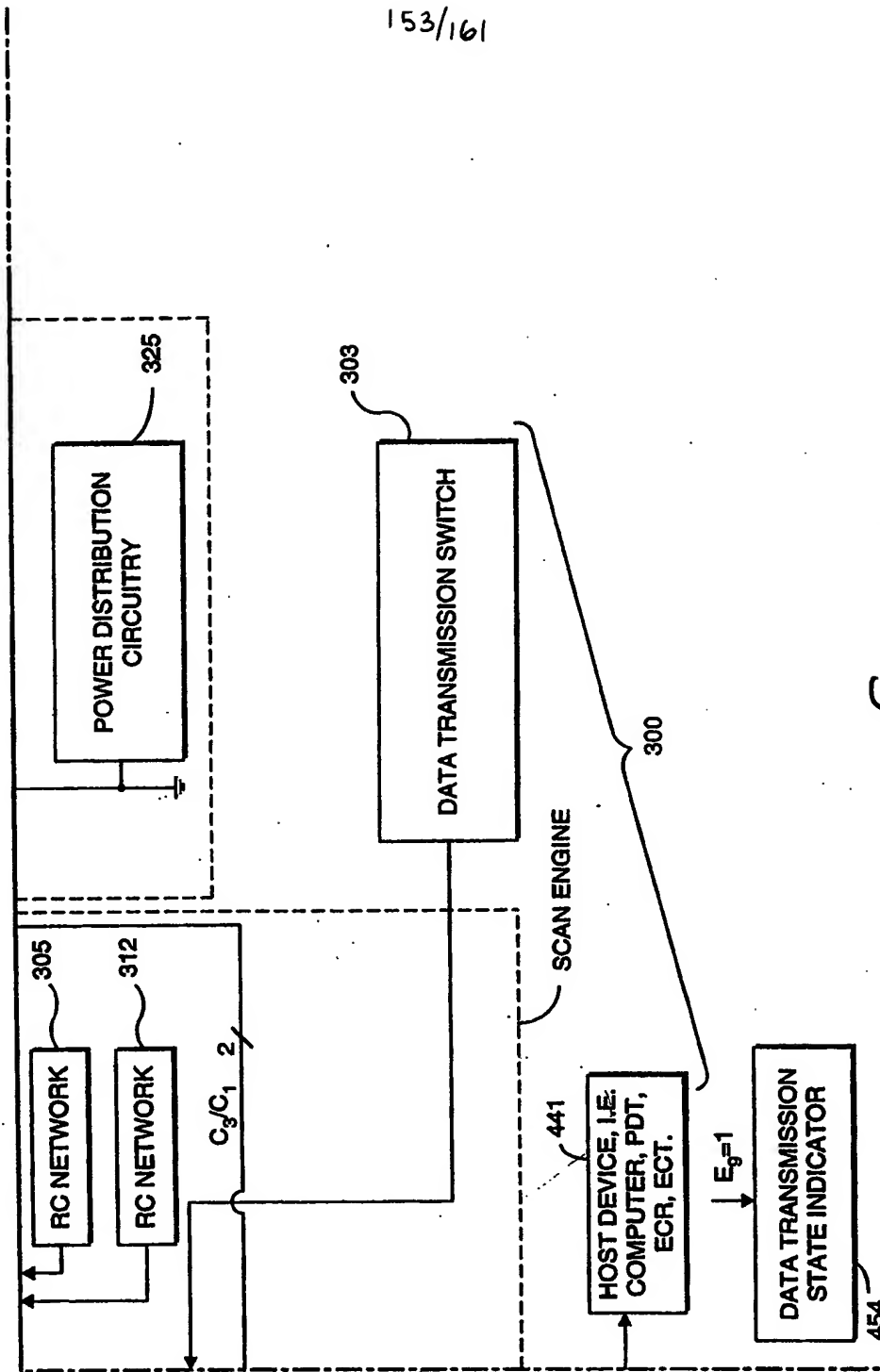


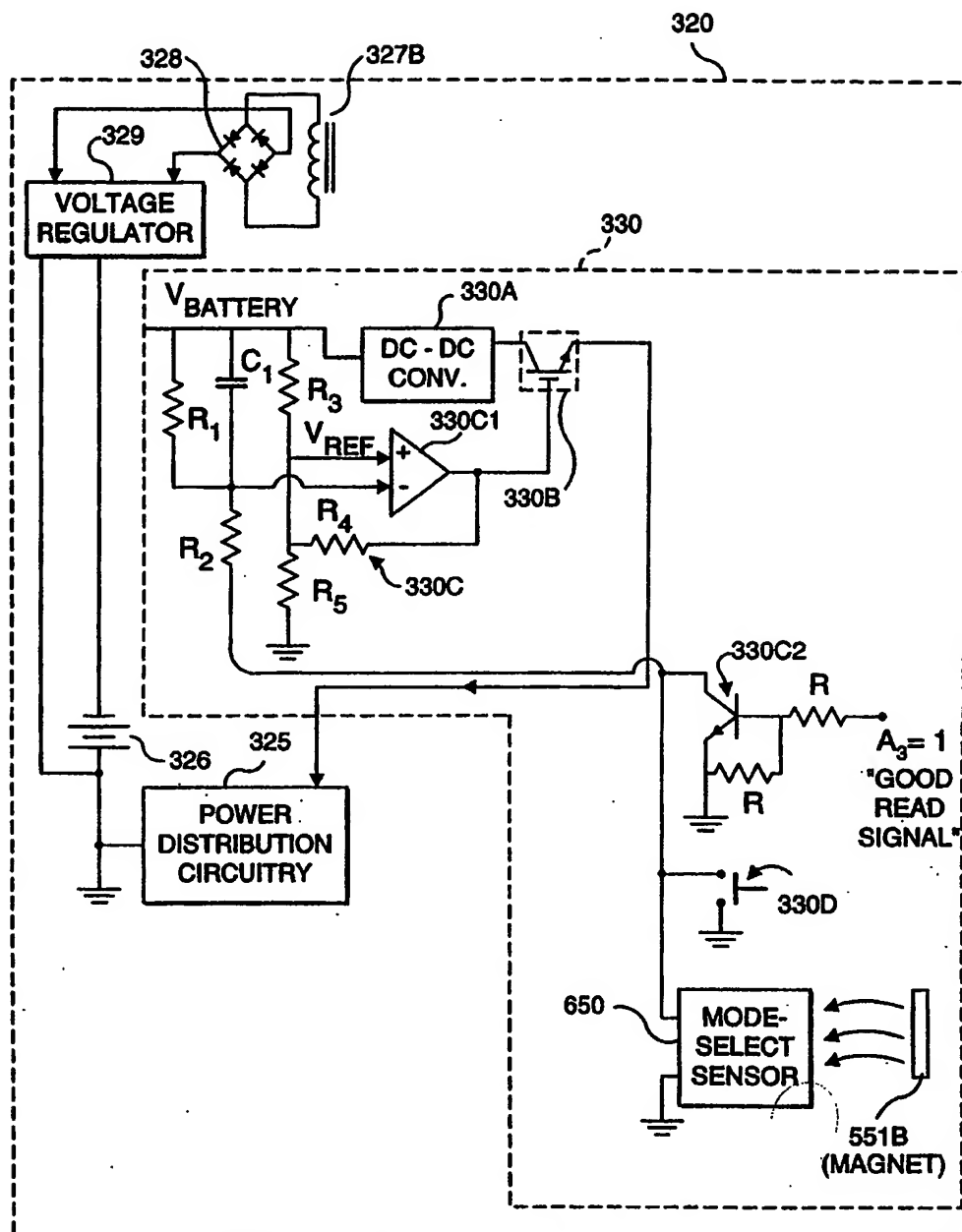
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FIG 47A3



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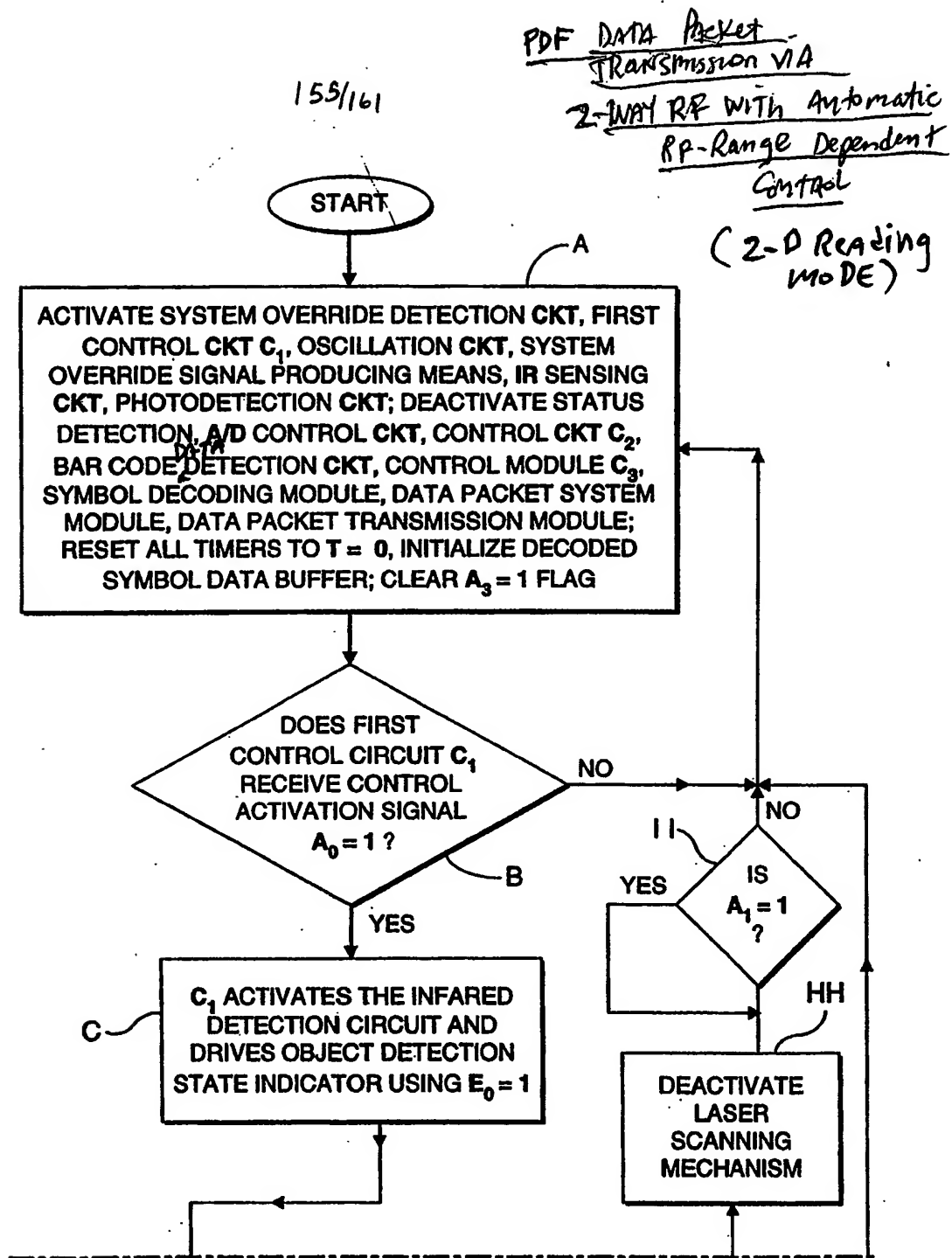
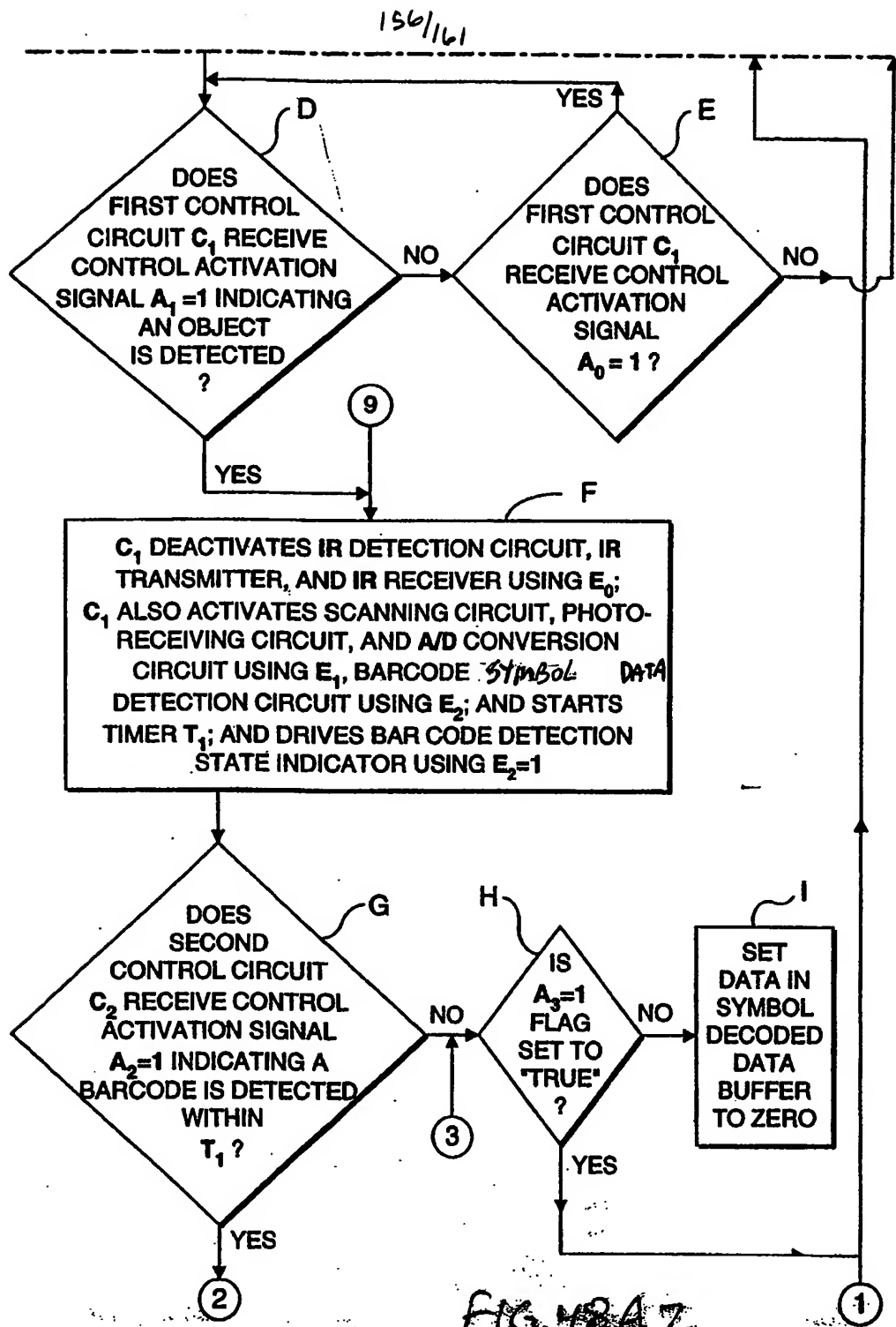
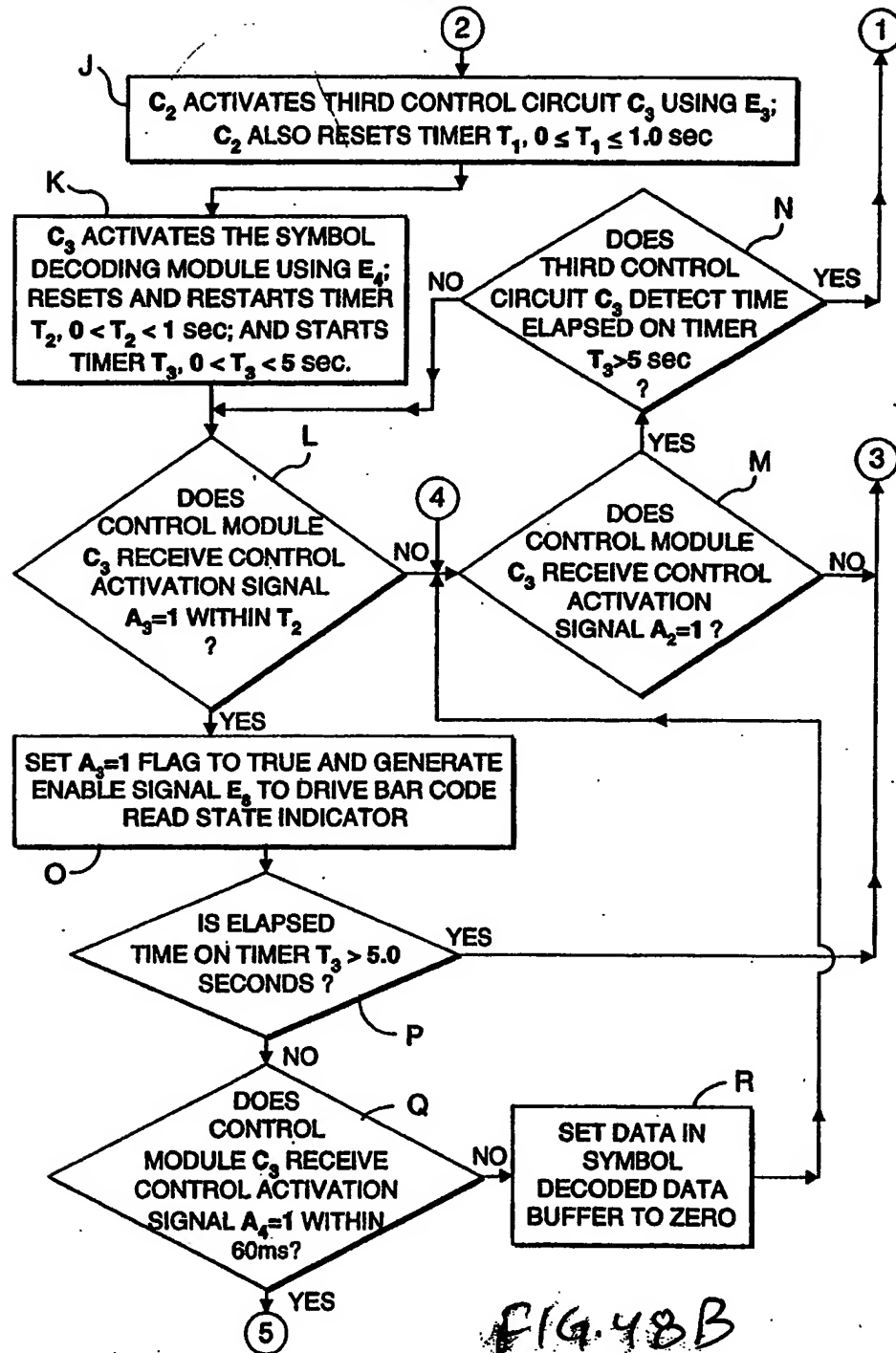


FIG. 48A1



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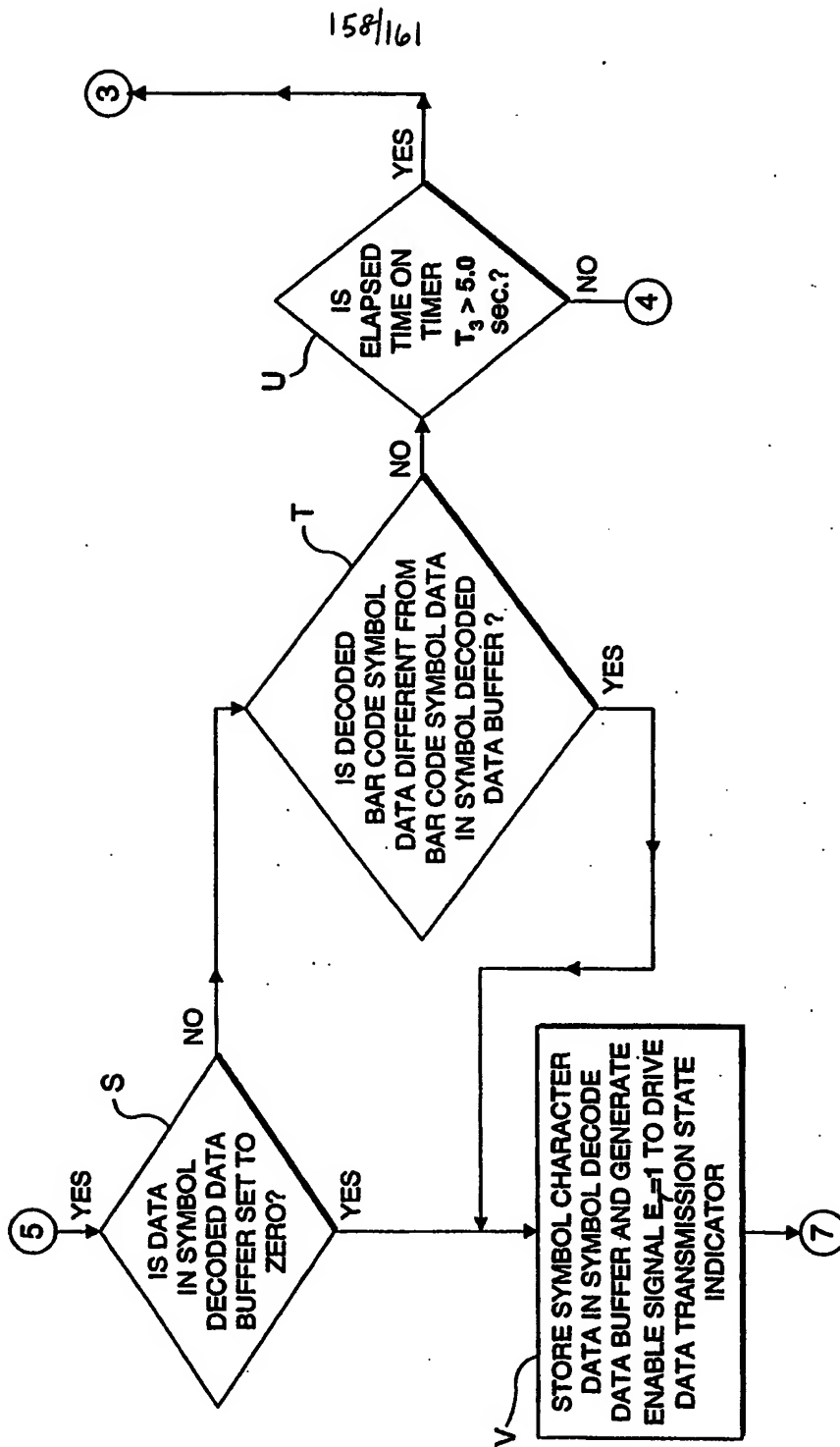


FIG. 48C1

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7

THIRD CONTROL CIRCUIT C_3 CONTINUES ACTIVATION OF LASER DIODE, SCANNING MOTOR, PHOTORECEIVING CIRCUIT, A/D CONVERSION CIRCUIT; DEACTIVATES SYMBOL DECODING MODULE; AND COMMENCES ACTIVATION DATA PACKET SYNTHESIS MODULE

W

UNDER C_3 CONTROL DATA PACKET SYNTHESIS MODULE CONSTRUCTS DATA PACKETS CONSISTING OF SYMBOL CHARACTER DATA, TRANSMITTER NUMBER, DATA PACKET GROUP NUMBER, CHECK CHARACTER AND FRAMING CHARACTERS

X

IS IN-RANGE CONFIRMATION SIGNAL $A_5=1$?

NO

10

YES

ARE DATA PACKET GROUP(S) STORED IN DATA PACKET GROUP BUFFER?

NO

Z

YES

C_3 Control Module Generates Enable Signal $E_{11}=1$ Reloading Buffered Data Packet Group(s) into Data Packet Transmission Circuit

AA

Control module C_3 Generates Enable Signal $E_{10}=1$ loading currently Synthesized Data packet Group into Data Packet Transmission circuit

BB

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FIG. 48CZ

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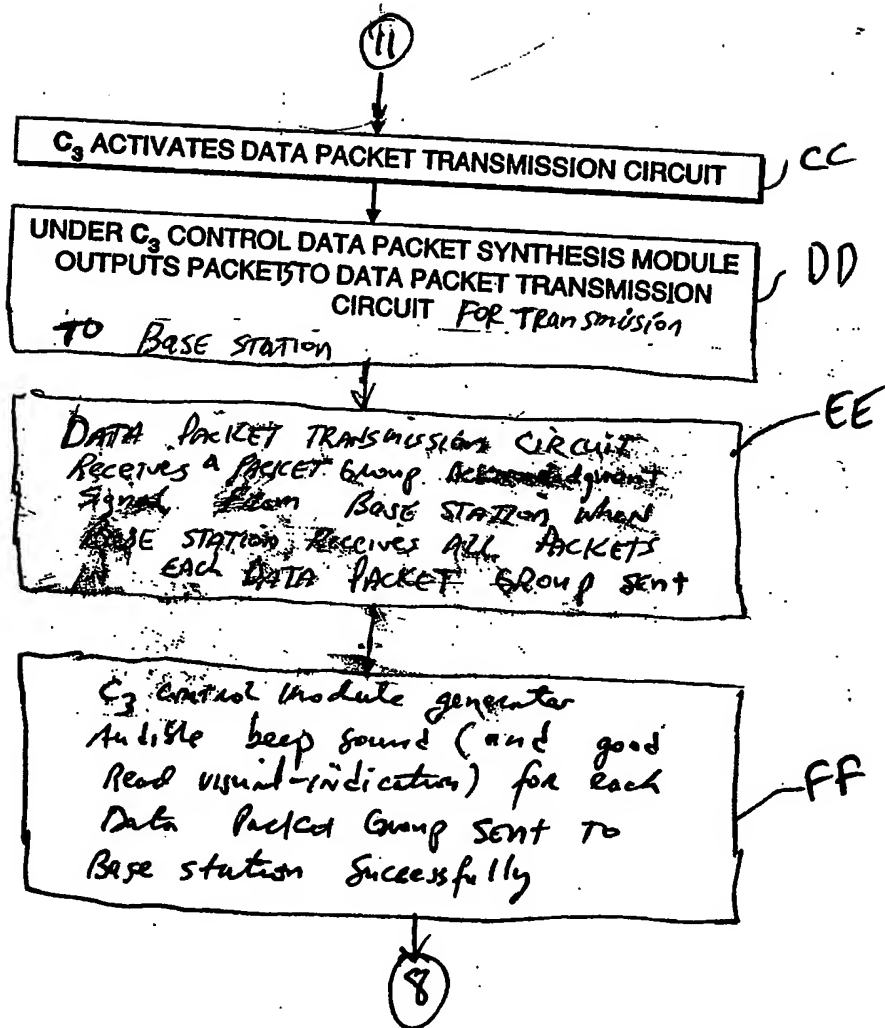


FIG. 48C3

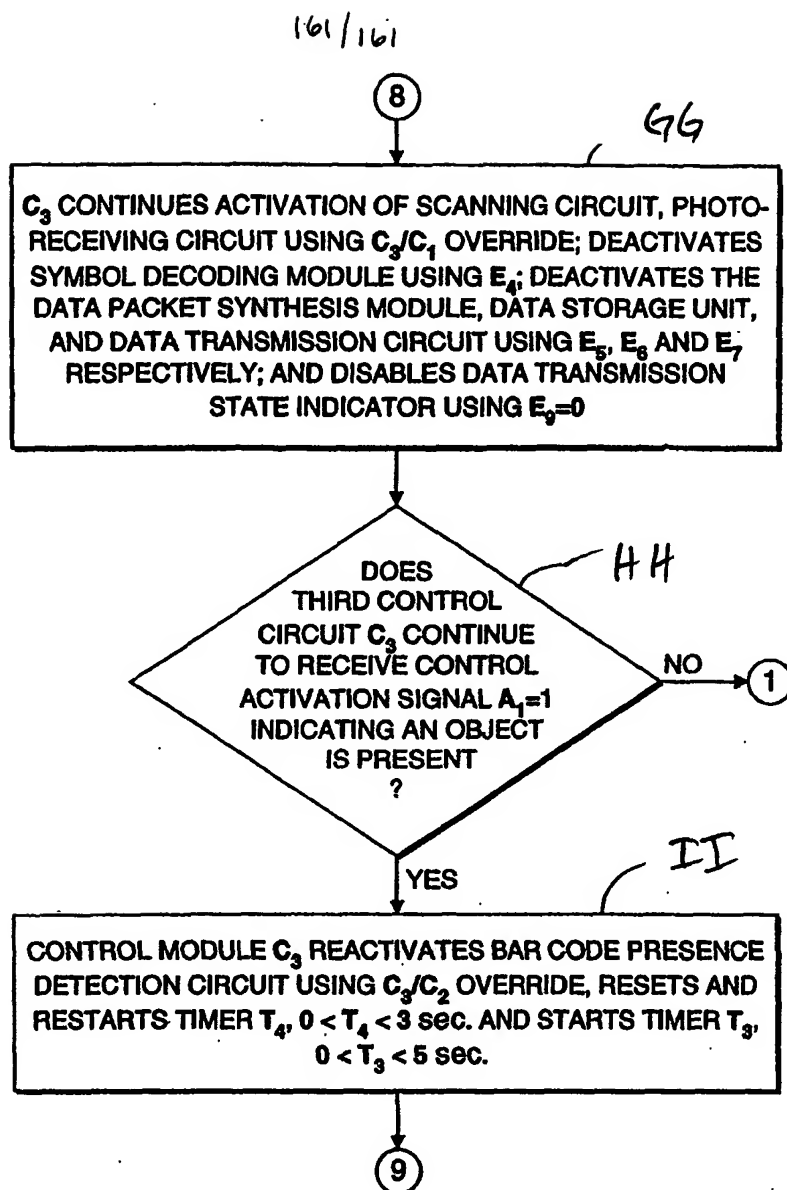


FIG. 48C4